

APPENDIX G

FLOOD-RESISTANT CONSTRUCTION

CHAPTER G1 GENERAL PROVISIONS

SECTION BC G101 PURPOSE AND OBJECTIVES

G101.1 Purpose. The purpose of this appendix is to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific flood hazard areas through the establishment of comprehensive regulations for management of flood hazard areas designed to:

1. Prevent unnecessary disruption of commerce, access and public service during times of flooding;
2. Manage the alteration of natural flood plains, stream channels and shorelines;
3. Manage filling, grading, dredging and other development which may increase flood damage or erosion potential;
4. Prevent or regulate the construction of flood barriers which will divert floodwaters or which can increase flood hazards;
5. Contribute to improved construction techniques in the flood plain; and
6. Comply with and exceed the minimum standards of the National Flood Insurance Program as administered by the Federal Emergency Management Agency (FEMA).

G101.2 Objectives. The objectives of this appendix are to:

1. Protect human life;
2. Minimize the expenditure of public money for flood control projects;
3. Minimize the need for rescue and relief efforts associated with flooding;
4. Minimize prolonged business interruption;
5. Minimize damage to structures located in areas of special flood hazard;
6. Minimize damage to public facilities and utilities such as water, electricity, telephone and sewer lines, and streets and bridges located in areas of special flood hazard;
7. Help maintain a stable tax base by providing for the sound use and development of flood prone areas; and
8. Ensure that potential owners and occupants are notified that property is within areas of special flood hazard.

G101.3 Reserved.

G101.4 Reserved.

SECTION BC G102 APPLICABILITY

G102.1 General. This appendix, in conjunction with the *New York City Construction Codes*, provides minimum requirements for development located in areas of special flood hazard within the jurisdiction of New York City, including:

1. **Subdivisions.** This appendix shall apply to the subdivision of land;
2. **Utilities.** This appendix shall apply to the installation of utilities;
3. **Site improvements.** This appendix shall apply to site improvements, including but not limited to, temporary or permanent storage of materials, mining, dredging, filling, grading, paving, excavations, operations and other land disturbing activities;
4. **Prefabricated buildings and manufactured homes.** This appendix shall apply to placement and replacement of prefabricated buildings and manufactured homes;
5. **Post-FIRM construction.** This appendix shall apply to post-FIRM construction;
6. **Alterations to post-FIRM construction.** This appendix shall apply to repair, reconstruction, rehabilitation, or additions to post-FIRM construction;
7. **Substantial improvement of pre-FIRM construction.** This appendix shall apply to substantial improvement of pre-FIRM buildings and structures, including restoration after damage, as if hereafter erected;
8. **Horizontal enlargements of pre-FIRM construction.** This appendix shall apply to horizontal enlargements of pre-FIRM buildings and structures to the extent of such horizontal enlargement, including but not limited to additions, decks, carports, or similar appendages. The existing portions of the structure shall not be required to comply, unless otherwise required because the alteration is deemed a substantial improvement; and
9. **Other alterations to pre-FIRM construction.** This appendix shall apply to alterations or repairs to pre-FIRM buildings and structures, including installation of new components, materials, finishes and equipment, that increase the degree of noncompliance with this appendix. The following alterations or repairs, other than substantial improvements, shall not be deemed as an increase in the degree of noncompliance:
 - 9.1. Where the alteration or repair comprises the replacement of pre-FIRM components, materials, finishes or equipment;
 - 9.2. Where the alteration or repair comprises the installation of new components, materials, finishes or equipment in a space within the structure

where similar pre-FIRM components, materials, finishes or equipment already exist; and

- 9.3. Where such alteration is a change in use, occupancy or how such space is used, provided that such change would not increase the degree of noncompliance with requirements of this appendix. The conversion of any space below the design flood elevation from nonhabitable space into habitable space shall be deemed an increase in the degree of noncompliance.

G102.2 Establishment of areas of special flood hazard. The following flood hazard map and supporting data are adopted as referenced standards and declared to be a part of this appendix:

1. FEMA FIS 360497.
2. FEMA FIRMs 360497.

G102.3 Letters of map change. Map changes to FEMA FIRMs 360497 shall be administered in compliance with Sections G102.3.1 and G102.3.2.

G102.3.1 Letters of map amendment (LOMA). Where FEMA FIRMs 360497 indicates that a structure or tax lot is within a delineated area of special flood hazard, but the pre-FIRM ground elevations adjacent to the structure or throughout the tax lot are at or above the base flood elevation, the commissioner shall deem such structure or tax lot as being within the area of special flood hazard and shall not approve plans except in compliance with this appendix, unless a letter of map amendment (LOMA) is issued by FEMA removing such structure or tax lot from the area of special flood hazard.

G102.3.2 Letter of map revision based on fill (LOMR-F). Where FEMA FIRMs 360497 indicates that a structure or tax lot is within a delineated area of special flood hazard, but post-FIRM compacted fill is proposed to be added adjacent to the structure or throughout the tax lot to an elevation at or above the base flood elevation, the commissioner shall deem such structure or tax lot as being within the area of special flood hazard and shall not approve plans except in compliance with this appendix, unless a conditional or final letter of map revision based on fill (LOMR-F) is issued by FEMA removing such structure or tax lot from the area of special flood hazard. The commissioner shall promulgate rules establishing procedures for processing letters of map revision based on fill (LOMR-F).

G102.3.3 Certificates of occupancy. Certificates of occupancy shall indicate that the structure or tax lot is subject to a letter of map amendment (LOMA) or letter of map revision based on fill (LOMR-F) as per Section G106.3.

SECTION BC G103 ADMINISTRATION

G103.1 Permit applications. The commissioner is hereby designated as the flood plain administrator for the City of New York and shall review permit applications to determine that:

1. Proposed development sites will be reasonably safe from flooding;

2. All site development activities, including grading, filling, utility installation and drainage modification, and all new construction and substantial improvements (including the placement of prefabricated buildings and manufactured homes) are designed and constructed with methods, practices and materials that minimize flood damage and that are in accordance with this code and ASCE 24; and
3. All other required state and federal permits have been obtained.

G103.2 Reserved.

G103.3 Determination of base flood elevations. Where the proposed development is within an area of special flood hazard but the base flood elevations are not specified in the FEMA FIRMs 360497, the commissioner shall require the applicant to request base flood elevation data from the New York State Department of Environmental Conservation (DEC); and

1. Submit to the commissioner either:
 - 1.1. A letter from DEC making such a determination of base flood elevation; or
 - 1.2. A letter from the DEC indicating that the data are not available. When such a letter from DEC indicates that the data are not available, the base flood elevation shall be equal to 3 feet (914 mm) above the highest adjacent pre-FIRM grade.

Exception: Large lots. Where the base flood elevation is not specified, the applicant shall submit a detailed engineering study establishing the base flood elevation, performed by an engineer in accordance with accepted hydrologic and hydraulic engineering techniques, in sufficient detail to allow review by the commissioner for any of the following conditions:

1. For a development which is located on a tax lot greater than 5 acres (2.02 hectares), or is located on property that was part of a tax lot that was greater than 5 acres (2.02 hectares) at the time of the adoption of the FIRM (October 1, 1984), or at any subsequent applicable map change thereto; or
2. For subdivisions resulting in 50 or more tax lots, including all tax lots previously subdivided from the same tax lot since the adoption of the FIRM (October 1, 1984), or since any subsequent applicable map changes thereto.

G103.4 Reserved.

G103.5 Floodway encroachment. Prior to issuing a permit for any floodway encroachment, including fill, new construction, substantial improvements and other development or land-disturbing activity, the commissioner shall require submission of a certification, along with supporting technical data, demonstrating that such development will not cause any increase of the level of the base flood. However, a floodway encroachment that increases the level of the base flood may be authorized if the applicant has:

1. Applied for a conditional Letter of Map Revision; and

2. Received the approval of the Federal Emergency Management Agency (FEMA).

G103.6 Watercourse alteration. Prior to issuing a permit for any alteration or relocation of any watercourse within an area of special flood hazard, the commissioner shall require the applicant to:

1. Notify any affected adjacent municipalities or government jurisdictions;
2. Notify the DEC;
3. Submit evidence of such notifications to the commissioner and the Regional Director, Region II, the Federal Emergency Management Agency (FEMA);
4. Submit to the commissioner evidence of all such notifications;
5. Submit an engineering analysis demonstrating that the flood-carrying capacity of the altered or relocated portion of the watercourse will not be decreased; and
6. Submit evidence that such watercourses will be maintained in a manner which preserves the channel's flood-carrying capacity.

G103.7 Sand dune alterations in V-Zones. Prior to issuing a permit for any alteration of sand dunes in a V-Zone, the commissioner shall require submission of an engineering analysis demonstrating that the proposed alteration will not increase the potential for flood damage.

G103.8 Records. The commissioner shall maintain records of the following:

1. Applications and supporting documents for development in areas of special flood hazard;
2. Permits issued in areas of special flood hazard;
3. Inspection reports;
4. Certifications required in this appendix; and
5. Certificate of occupancy where applicable.

G103.9 Violations. See Chapter 2 of Title 28 of the *Administrative Code*.

SECTION BC G104 PERMITS

G104.1 Permit required. Any person, owner or authorized agent who intends to conduct any development, as applicable pursuant to Section G102.1, within an area of special flood hazard, shall first apply to the commissioner and shall obtain the required permit.

G104.2 Permit application requirements. The applicant shall file an application in writing on a form furnished by the commissioner. The commissioner shall not approve such application unless the applicant submits all plans, details, data and documents demonstrating that the development complies with Section G104 and all other provisions of this appendix.

G104.3 Site plan. The permit application shall include a site plan. The site plan shall include plans and drawings, shall be sealed by a registered design professional and shall include the

following information and any other data as may be required by the department:

1. A delineation of the flood hazard areas, including identification of the base and design flood and elevations;
2. If applicable, the location of the regulatory floodway;
3. For all proposed structures, spot ground elevations at building corners and in 20-foot (6096 mm) or smaller intervals along the foundation footprint, or 1-foot (305 mm) contour elevations throughout the building site;
4. Proposed locations of water supply, sanitary sewer, and utilities;
5. Drainage patterns and facilities; and
6. Foundation design details, including but not limited to:
 - 6.1. Proposed elevation of the lowest floor including basement (for flood zone purposes) of all structures;
 - 6.2. For a crawl space, parking, storage, building access and other wet floodproofed enclosures below the design flood elevation, location and total net area of foundation openings in accordance with ASCE 24;
 - 6.3. For dry floodproofed enclosures in buildings or structures that are nonresidential (for flood zone purposes), the proposed elevation to which the enclosure will be dry floodproofed in accordance with ASCE 24; and
 - 6.4. Any proposed fill and excavation details.

Exception: Applications for subdivisions shall comply with Section G302.

G104.4 Water course alteration. The permit application shall include, if applicable, a description of the extent to which any watercourse will be altered or relocated as a result of proposed development, and any documentation required by Section G103.6.

G104.5 Certifications. The permit application shall include the applicable certifications in accordance with Sections G104.5.1 through G104.5.3.

G104.5.1 A-Zones. For construction in A-Zones, the permit application shall include the following certifications, as applicable:

1. **Wet floodproofing certification.** For wet floodproofed enclosures below the design flood elevation, construction documents shall include a certification by the applicant that the design provides for the automatic entry and exit of floodwaters for equalization of hydrostatic flood forces in accordance with Section 2.6.1.2, ASCE 24.
2. **Dry floodproofing certification for nonresidential buildings.** For dry floodproofed buildings and structures that are nonresidential (for flood zone purposes), construction documents shall include a certification by the applicant that the dry floodproofing is designed in accordance with ASCE 24.

3. **Utility certifications.** For all applications involving utility or mechanical work, including applications where such work is to be filed in a separate, related application, construction documents shall include a certification by the applicant that “all heating, ventilation, air conditioning, plumbing, electrical and other services facilities and equipment within the structure or site will be located or constructed so as to prevent water from entering or accumulating within the components during conditions of flooding in accordance with ASCE 24.”

G104.5.2 V-Zones. For construction in V-Zones the permit application shall include the following certifications, as applicable:

1. **Structural design certification.** Construction documents shall include a certification by the applicant that the “entire structure is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16 of the *New York City Building Code*.”
2. **Breakaway wall certification.** Where breakaway walls are provided, construction documents shall include a certification by applicant that “the breakaway walls meet the load requirements of Section 5.3.2.3 of ASCE 7, are designed in accordance with ASCE 24, and are of an open lattice-type construction only.”
3. **Utility certifications.** For all applications involving utility or mechanical work, including applications where such work is to be filed in a separate, related application, construction documents shall include a certification by the applicant that “all heating, ventilation, air conditioning, plumbing, electrical and other services, facilities and equipment within the structure or site will be located or constructed so as to prevent water from entering or accumulating within the components during conditions of flooding, in accordance with ASCE 24.”

G104.5.3 Floodway encroachment certification. For any floodway encroachment, including fill, new construction, substantial improvements and other development or land-disturbing activity, the applicant shall submit a certification, along with supporting technical data, demonstrating that such development will not cause any increase of the level of the base flood in accordance with the requirements of Section G103.5.

G104.6 Validity of permit. The issuance of a permit under this appendix shall not be construed to be a permit for, or approval of, any violation of this appendix or any other provision of this code. The issuance of a permit based on submitted documents and information shall not prevent the commissioner from requiring the correction of errors. The commissioner is authorized to prevent occupancy or use of a structure or site which is in violation of this appendix or other provisions of this code.

G104.7 Permit expiration. A permit shall become invalid if the proposed development:

1. Is not commenced within 180 days after its issuance; or
2. If the work authorized is suspended or abandoned for a period of 180 days after the work commences.

G104.8 Permit reinstatement. Permit reinstatements shall be requested in writing. The commissioner is authorized to grant, in writing, one or more extensions of time, for periods not more than 180 days each subject to the limitations of Section 28-105.

G104.9 Permit suspension or revocation. The commissioner is authorized to suspend or revoke a permit issued under this appendix wherever the permit is issued in error or on the basis of incorrect, inaccurate or incomplete information, or in violation of this code, in accordance with Section 28-105.

SECTION BC G105 SPECIAL INSPECTIONS REQUIREMENTS

G105.1 General. Special inspections shall be performed in accordance with this section.

G105.2 All work applications. All work applications, regardless of the extent of the scope of work, shall be subject to the following special inspection:

1. **Flood zone compliance inspection.** Prior to sign-off of work, a registered design professional shall certify that: “the structure was constructed” or “alterations were performed,” “with methods and practices that minimize flood damage and that are in accordance with approved plans, and with any applicable provisions of Appendix G of the *New York City Building Code* and ASCE 24.”

G105.3 New buildings and substantial improvements. In addition to the flood zone compliance inspection required by Section G105.2, all applications for new buildings or substantial improvements shall be subject to the following special inspections:

1. **Elevation progress inspection.** Upon placement of the lowest floor, including the basement (for flood zone purposes), an engineer or licensed professional surveyor shall inspect the site and verify the elevation of such lowest floor. The inspection report verifying the elevation shall be submitted to the commissioner prior to further vertical construction. The commissioner shall be permitted to issue a stop work order if such inspection report is not submitted.
2. **Final elevation inspection.** The final elevations shall comprise either of the following, as applicable:
 - 2.1. **Elevation certificate.** Prior to sign-off of work, an engineer or licensed professional surveyor shall submit to the commissioner a certification of the elevation of the lowest floor, including the basement (for flood zone purposes). Such certification shall be made utilizing FEMA Form 81-31 titled, “Elevation Certificate.”
 - 2.2. **Dry floodproofing certificate.** Prior to sign-off of work, an engineer or licensed professional surveyor shall submit to the commissioner a dry

floodproofing certificate. Such certification shall be made utilizing FEMA Form 81-65 titled, "Floodproofing Certification."

G105.3.1 Flood shield inspection. Where floodshields or other flood control devices are installed as part of a dry floodproofing system in buildings and structures that are nonresidential (for flood zone purposes), a registered design professional shall inspect the shields or devices in their stored positions or locations, witness their activation or transportation to their installed positions, and witness their deactivation or transportation back to their stored locations. The registered design professional shall also confirm the installation of signage required by ASCE 24, Section 6.2.3, Item 3.

G105.4 Reserved.

G105.5 Reserved.

G105.6 Reserved.

G105.7 Reserved.

SECTION BC G106 CERTIFICATES OF OCCUPANCY

G106.1 Applicability. This section shall apply to post-FIRM construction and substantial improvements where the work results in the issuance of a new or amended certificate of occupancy.

G106.2 Spaces subject to flooding in A-Zones. The certificate of occupancy shall describe all nondry floodproofed spaces below the design flood elevation as "subject to flooding," including but not limited to wet floodproofed spaces usable solely for parking, storage, building access or crawl spaces.

G106.3 Spaces subject to flooding in V-Zones. The certificate of occupancy shall describe all spaces below the design flood elevation as "subject to flooding," including but not limited to spaces usable solely for parking, storage, building access or crawl spaces.

G106.4 Dry floodproofed spaces. The certificate of occupancy shall describe any dry floodproofed spaces as "dry floodproofed." For such buildings containing dwelling units, the certificate of occupancy shall also provide notations as required by Section G304.1.2, Item 2.2.5. Where flood shields or other flood control devices are installed, the certificate of occupancy shall also provide notations describing these features.

G106.5 Letters of map change. Where applicable, the certificate of occupancy shall indicate that "the structure is exempted from the area of special flood hazard pursuant to FEMA Letter of Map Amendment (LOMA) # (____)," or that "the structure is exempted from the area of special flood hazard pursuant to FEMA Letter of Map Revision Based on Fill (LOMR-F) # (____)."

SECTION BC G107 VARIANCES

G107.1 General. The Board of Standards and Appeals shall hear and decide requests for variances from the requirements of this appendix. The Board of Standards and Appeals shall base its determination on technical justifications, and has the right to attach such conditions to variances as it deems necessary to further the purposes and objectives of this appendix.

G107.2 Conditions for variance.

G107.2.1 Historic structures. The Board of Standards and Appeals is authorized to issue a variance for the repair or rehabilitation of a historic structure provided that:

1. The application has received approval from the Landmark Preservation Committee and/or the New York State Historical Preservation Office, as applicable;
2. The proposed repair or rehabilitation will not preclude the structure's continued designation as a historic structure; and
3. The variance is the minimum necessary to preserve the historic character and design of the structure.

G107.2.2 Floodway restrictions. The Board of Standards and Appeals shall not issue a variance for any proposed development in a floodway if any increase in flood levels would result during the base flood discharge.

G107.2.3 General conditions for variance. Except for historic structures as provided for in Section G107.2.1, the Board of Standards and Appeals is authorized to issue a variance only upon:

1. A determination that the new construction, substantial improvement, or other proposed development is located on a tax lot that, on November 18, 1983, was no more than $\frac{1}{2}$ acre (0.2 hectare) in size. However, where the tax lot has been determined to be larger than $\frac{1}{2}$ acre (0.2 hectare), the technical justification required for issuing the variance increases with the lot size;
2. Showing of good and sufficient cause;
3. Determination that failure to grant the variance would result in exceptional hardship to the applicant;
4. Determination that the granting of a variance will not result in:
 - a. Increased flood heights;
 - b. Additional threats to public safety, provided, however, that the variance is permitted to increase risks to life and property for the subject structure;
 - c. Extraordinary public expense;
 - d. Nuisances;
 - e. Fraud on or victimization of the public; or
 - f. Conflict with existing local laws or ordinances; and
5. Determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.

G107.2.4 Functionally dependent facilities. The Board of Standards and Appeals is authorized to issue a variance for the construction or substantial improvement of a functionally dependent facility provided that:

1. The criteria for Sections G107.2.1 through G107.2.3 are met; and
2. All methods and materials utilized minimize flood damage during the base flood and create no additional threats to public safety.

G107.3 Standards for variance. In reviewing applications for variances, the Board of Standards and Appeals shall consider all technical evaluations, all relevant factors, all other portions of this appendix and the following:

1. The danger that materials and debris may be swept onto other lands resulting in injury or damage;
2. The danger to life and property due to flooding or erosion damage;
3. The susceptibility of the proposed development, including contents, to flood damage and the effect of such damage on current and future owners;
4. The importance of the services provided by the proposed development to the community;
5. The availability of alternate locations for the proposed development that are not subject to flooding or erosion;
6. The relationship of the proposed development to the comprehensive plan and flood plain management program for that area;
7. The safety of access to the property in times of flood for ordinary and emergency vehicles;
8. The expected heights, velocity, duration, rate of rise and debris and sediment transport of the floodwaters and the effects of wave action, if applicable, expected at the site; and
9. The costs of providing governmental services during and after flood conditions including maintenance and repair of public utilities and facilities such as sewer, gas, electrical and water systems, streets and bridges.

G107.4 Notification of risks. Upon issuance of a variance, the Executive Director of the Boards of Standards and Appeals shall provide written notice to the owner and the applicant that:

1. The issuance of a variance to construct a structure below the base flood level will result in increased premium rates for flood insurance; and
2. That such construction below the base flood level increases risks to life and property.

G107.5 Records. The Board of Standards and Appeals shall:

1. Maintain a record of all variance actions, including justification for their issuance; and
2. Report such variances issued in its biennial report submitted to the Federal Emergency Management Agency (FEMA).

CHAPTER G2 DEFINITIONS

SECTION BC G201 DEFINITIONS

G201.1 General. The following words and terms shall, for the purposes of this appendix, have the meanings shown herein.

G201.2 Definitions.

A-ZONE. An area of special flood hazard without high velocity wave action. When not shown on the FIRMs, the water surface elevation may be determined from available data by the registered design professional of record in accordance with Section G103.3. See also “Area of special flood hazard.”

AREA OF SPECIAL FLOOD HAZARD. The land in the flood plain delineated as subject to a 1-percent or greater chance of flooding in any given year. Such areas are designated on the Flood Insurance Rate Map (FIRM) as A-Zones or V-Zones. Such areas are also known as the base flood plain or 100 year flood plain. Areas designated as X-Zones shall not be deemed areas of special flood hazard for the purposes of this Appendix.

BASE FLOOD. The flood having a 1-percent chance of being equaled or exceeded in any given year.

BASE FLOOD ELEVATION. The elevation of the base flood, including wave height, as specified on FEMA FIRMs 360497 or as determined in accordance with Section G103.3, relative to the National Geodetic Vertical Datum (NGVD).

BASEMENT (FOR FLOOD ZONE PURPOSES). The portion of a building having its floor subgrade (below ground level) on all sides.

BREAKAWAY WALL. An open lattice wall that is not part of the structural support of the building to which it is attached and that is intended through its design and construction to collapse under specific later loading forces without causing damage to the elevated portion of the building or the supporting foundation system.

DESIGN FLOOD ELEVATION. The applicable elevation specified in ASCE 24, Tables 2-1, 4-1, 5-1, 6-1, or 7-1, depending on the structural occupancy category designated in ASCE 24, Table 1-1.

DEVELOPMENT. Any man-made change to improved or unimproved real estate, including but not limited to, buildings or other structures, temporary or permanent storage of materials, mining, dredging, filling, grading, paving, excavations, operations and other land disturbing activities.

EXISTING CONSTRUCTION. See [“PRE-FIRM DEVELOPMENT.”]

EXISTING STRUCTURE. See “pre-FIRM development.”

FLOOD or FLOODING. A general and temporary condition of partial or complete inundation of normally dry land from:

1. The overflow of inland or tidal waters.
2. The unusual and rapid accumulation or runoff of surface waters from any source.

FLOOD-DAMAGE-RESISTANT MATERIALS. Any construction material, including finishes, capable of withstanding direct and prolonged contact with floodwaters without sustaining any damage that requires more than cosmetic repair.

FLOOD INSURANCE RATE MAP (FIRM). The official map on which the Federal Emergency Management Agency (FEMA) has delineated areas of special flood hazard, base flood elevations, and the flood boundary and floodways.

FLOOD INSURANCE STUDY (FIS). The official report provided by the Federal Emergency Management Agency (FEMA) containing the Flood Insurance Rate Map (FIRM), the water surface elevation of the base flood and supporting technical data.

FLOODPROOFING, DRY. For buildings and structures that are nonresidential (for flood zone purposes), a combination of design modifications that results in the building's or structure's being water tight to the design flood elevation, including the attendant utility and sanitary facilities, with walls substantially impermeable to the passage of water and with structural components having the capacity to resist loads as identified in ASCE 7.

FLOODPROOFING, WET. A floodproofing method designed to permit parts of the structure below the design flood elevation that are used for parking, storage, building access, or crawl space to intentionally flood, by equalizing hydrostatic pressures and by relying on the use of flood damage-resistant materials and construction techniques.

FLOODWAY. The channel of the river, creek or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. Floodways are mapped only in the Boroughs of the Bronx and Staten Island.

FUNCTIONALLY DEPENDENT FACILITY. A facility that cannot be used for its intended purpose unless it is located or carried out in close proximity to water, such as a docking or port facility necessary for the loading or unloading of cargo or passengers, shipbuilding or ship repair. The term does not include long-term storage, manufacture, sales or service facilities.

HISTORIC STRUCTURE. A pre-FIRM building or structure:

1. Designated as a landmark or located within an historic district designated by the New York City Landmarks Preservation Commission;
2. Listed or preliminarily determined to be eligible for listing in the National or State Register of Historic Places; or
3. Determined by the Secretary of the U.S. Department of the Interior or the New York State Department of Parks and Recreation as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district.

LETTER OF MAP AMENDMENT (LOMA). An official amendment to the FIRM, issued and approved by the Federal Emergency Management Agency (FEMA), removing struc-

tures or tax lots from areas of special flood hazard, resulting from a demonstration that the pre-FIRM ground elevations are at or above the base flood elevation.

LETTER OF MAP REVISION BASED ON FILL (LOMR-F). An official amendment to the FIRM, issued and approved by the Federal Emergency Management Agency (FEMA), removing structures or tax lots from areas of special flood hazard, resulting from the post-FIRM placement of compacted fill, such that the new ground elevation is at or above the base flood elevation.

LOWEST FLOOR. The floor of the lowest enclosed area, including crawl spaces and basements (for flood zone purposes).

Exception: The lowest floor shall not include any wet floodproofed spaces usable solely for vehicle parking, building access, storage or crawl space, provided that such enclosure is not built so as to render the structure in violation of this appendix, including that:

1. Such enclosure shall allow for the automatic entry and exit of floodwaters;
2. Such enclosure shall be constructed solely of flood-resistant materials and finishes;
3. Such enclosure shall have a floor elevation equal to or higher than the outside adjacent grade on at least one side; and
4. Such outside adjacent grade shall slope down, towards the source of flooding, providing positive drainage by gravity, thus preventing accumulations of water under or in the structure after the floodwaters recede without the use of pumps, pipes or drains.

MANUFACTURED HOME. A structure that is transportable in one or more sections, built on a permanent chassis, designed for use with or without a permanent foundation when attached to the required utilities, and constructed to the Federal Mobile Home Construction and Safety Standards and rules and regulations promulgated by the U.S. Department of Housing and Urban Development. The term also includes mobile homes, park trailers, travel trailers and similar transportable structures that are placed on a site for 180 consecutive days or longer.

MANUFACTURED HOME PARK OR SUBDIVISION. A parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.

MARKET VALUE OF STRUCTURE. The price that a buyer is willing, but is not under any duty, to pay for a particular structure to an owner who is willing, but not obligated, to sell, exclusive of the value of the land, or of other buildings or structures on the same tax lot. The market value of a structure shall be determined in accordance with rules promulgated by the commissioner.

NATIONAL GEODETIC VERTICAL DATUM (NGVD). The national vertical datum standard established in 1929; used as a reference for establishing elevations within a flood plain.

NEW CONSTRUCTION. See ["POST-FIRM DEVELOPMENT."]

NONRESIDENTIAL (FOR FLOOD ZONE PURPOSES).

A building or structure that either:

1. Contains no space classified in Group I-1, R-1, R-2, or R-3, and contains no space that is accessory, as such term is defined in the *New York City Zoning Resolution*, to any Group I-1, R-1, R-2, or R-3 occupancy; or
2. Contains such space(s), but also contains space on the lowest floor that is not accessory, as such term is defined in the *New York City Zoning Resolution*, to a Group I-1, R-1, R-2, or R-3 occupancy.

PRE-FIRM DEVELOPMENT. Any development:

1. Completed prior to November 13, 1983;
2. Under construction on November 13, 1983 provided that the start of construction was prior to said date; or
3. Completed on or after November 13, 1983 but that:
 - 3.1. Was not located within an area of special flood hazard at the start of construction; and
 - 3.2. Is now located within an area of special flood hazard as a result of a subsequent change to the FIRM.

PRE-FIRM STRUCTURE. See [“PRE-FIRM DEVELOPMENT.”]

POST-FIRM DEVELOPMENT. Any development that is not pre-FIRM development.

POST-FIRM STRUCTURE. See [“POST-FIRM DEVELOPMENT.”]

RECREATIONAL VEHICLE. A vehicle that is built on a single chassis, 400 square feet (37.16 m²) or less when measured at the largest horizontal projection, designed to be self-propelled or permanently towable by a light-duty truck, and designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel or seasonal use. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect-type utilities and security devices and has no permanently attached additions.

RESIDENTIAL (FOR FLOOD ZONE PURPOSES). A building or structure containing any space that is either:

1. Classified in Group I-1, R-1, R-2, or R-3; or
2. Accessory, as such term is defined in the *New York City Zoning Resolution*, to any Group I-1, R-1, R-2, or R-3 occupancy.

Exception: Such a building or structure shall be considered nonresidential (for flood zone purposes) when also containing space on the lowest floor that is not accessory, as such term is defined in the *New York City Zoning Resolution*, to a Group I-1, R-1, R-2, or R-3 occupancy.

SAND DUNES. Naturally occurring accumulations of sand in ridges or mounds landward of a beach.

SPECIAL FLOOD HAZARD AREA. See [“AREA OF SPECIAL FLOOD HAZARD.”]

START OF CONSTRUCTION. The date of permit issuance for: (i) post-FIRM developments; (ii) substantial improvements to pre-FIRM structures; and (iii) those pre-FIRM developments that, at the time of permit issuance, were not within an area of special flood hazard but that, prior to completion, were within an area of special flood hazard as a result of map change; provided the actual commencement of construction, repair, reconstruction, rehabilitation, addition, placement or other improvement is within 180 days after the date of permit issuance and such construction activity is not thereafter suspended or abandoned for 180 days or more. For the purposes of this definition:

1. The actual commencement of construction means the first placement of permanent construction of a building (including a manufactured home or prefabricated building) on a site, such as the pouring of a slab or footings, installation of pilings or construction of columns.
2. Permanent construction does not include land preparation (such as clearing, excavation, grading or filling), the installation of streets or walkways, excavation for a basement (for flood zone purposes), footings, piers or foundations, the erection of temporary forms or the installation of accessory buildings such as garages or sheds not occupied as dwelling units or not part of the main building.
3. For a substantial improvement, the actual commencement of construction means the first alteration of any wall, ceiling, floor or other structural part of a building, regardless of whether that alteration affects the external dimensions of the building.

SUBSTANTIAL DAMAGE. Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

SUBSTANTIAL IMPROVEMENT. Any repair, reconstruction, rehabilitation, addition or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. 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 pre-FIRM health, sanitary or safety code violations identified by the commissioner, the Fire Commissioner, the Commissioner of Housing Preservation and Development, or the Commissioner of Health and Mental Hygiene, and that are the minimum necessary to assure safe living conditions; or
2. Any alteration of a historic structure provided that the alteration will not preclude the structure’s continued designation as a historic structure.

V-ZONE. An area of special flood hazard subject to high-velocity wave action.

CHAPTER G3 CONSTRUCTION STANDARDS

SECTION BC G301 GENERAL

G301.1 All developments. To the extent required by Section G102.1, all developments, including but not limited to utility installation, site improvements, placement of prefabricated buildings and manufactured homes, new building construction, alterations and repairs, shall be designed and constructed to resist the effects of flood hazards and flood loads in accordance with this appendix and ASCE 24.

G301.1.1 Multiple flood zones. For a structure that is located in more than one zone (for instance both an A-Zone and an X-Zone, or both an A-Zone and a V-Zone), the provisions associated with the most restrictive area of special flood hazard shall apply to the entire structure.

G301.2 Reserved.

SECTION BC G302 SUBDIVISIONS

G302.1 General. Any subdivision proposal, including proposals for manufactured home parks and subdivisions, or other proposed new development within an area of special flood hazard shall demonstrate that:

1. All such proposals are consistent with the need to minimize flood damage;
2. All public utilities and facilities, such as sewer, gas, electric and water systems, are located and constructed to minimize or eliminate flood damage; and
3. Adequate drainage is provided to reduce exposure to flood hazards.

G302.2 Subdivision requirements. The following requirements shall apply to any proposed subdivision, including proposals for manufactured home parks and subdivisions, any portion of which lies within an area of special flood hazard:

1. The area of special flood hazard, including floodways and V-Zones, as appropriate, shall be delineated on tentative and final subdivision plats;
2. Base flood elevations shall be shown on tentative and final subdivision plats;
3. Building lots shall be provided with adequate buildable area, in accordance with the *New York City Zoning Resolution*, outside the floodway; and
4. The design criteria for any utilities and facilities, as set forth in this appendix and appropriate *New York City Construction Codes*, shall be met.

SECTION BC G303 SITE IMPROVEMENT

G303.1 Development in floodways. Development or land disturbing activity is prohibited in floodways unless it has been demonstrated through hydrologic and hydraulic analyses per-

formed in accordance with standard engineering practice that the proposed encroachment will not result in any increase in the level of the base flood, in accordance with Section G103.5.

G303.2 Sewer facilities. All new and replaced sanitary sewer facilities, private sewage treatment plants (including all pumping stations and collector systems) and on-site waste disposal systems shall be designed in accordance with Chapter 8, ASCE 24, to minimize or eliminate infiltration of floodwaters into the facilities and discharge from the facilities into floodwaters, or impairment of the facilities and systems.

G303.3 Water facilities. All new and replacement water facilities shall be designed in accordance with the provisions of Chapter 8, ASCE 24 to minimize or eliminate infiltration of floodwaters into the systems.

G303.4 Storm drainage. Storm drainage shall be designed to convey the flow of surface waters to minimize or eliminate damage to persons or property and shall meet the requirements of ASCE 24.

G303.5 Streets and sidewalks. Streets and sidewalks shall be designed to minimize potential for increasing or aggravating flood levels and shall meet the requirements of Section G303.7.

G303.6 Retaining walls and driveways. Retaining walls and driveways shall meet the requirements of Section G303.7.

G303.7 Grading and fill. In areas of special flood hazard grading and/or fill shall not be approved:

1. Unless such fill is placed, compacted and sloped to minimize shifting, slumping and erosion during the rise and fall of flood water and, as applicable, wave action, in accordance with ASCE 24.
2. In floodways, unless it has been demonstrated through hydrologic and hydraulic analyses performed by an engineer in accordance with standard engineering practice that the proposed grading or fill, or both will not result in any increase in the flood levels during the occurrence of the design flood, in accordance with Section G103.5.
3. In V-Zones, unless such fill is conducted and or placed to avoid diversion of water and waves towards any building or structure.

SECTION BC G304 POST-FIRM CONSTRUCTION AND SUBSTANTIAL IMPROVEMENTS

G304.1 A-Zone construction standards. The following standards shall apply to post-FIRM construction and substantial improvements located within A-Zones.

G304.1.1 Residential. For buildings or structures that are residential (for flood zone purposes), all post-FIRM new buildings and substantial improvements shall comply with the applicable requirements in Chapter G3 and ASCE 24, and shall be elevated as follows:

1. **Lowest floor.** The lowest floor, including the basement (for flood zone purposes), shall be elevated to at or above the design flood elevation specified in ASCE 24, Table 2-1;

2. **Enclosures below the design flood elevation.** Enclosed spaces below the design flood elevation specified in ASCE 24, Table 2-1, shall be useable solely for parking of vehicles, building access, storage, or crawlspace, and shall be wet floodproofed in accordance with ASCE 24. Breakaway walls are not required in A-Zones;
3. **Materials.** Only flood-damage-resistant materials and finishes shall be utilized below the design flood elevation specified in ASCE 24, Table 5-1;
4. **Utilities and equipment.** Utilities and attendant equipment shall be located at or above the design flood elevation specified in ASCE 24, Table 7-1, or shall be constructed so as to prevent water from entering or accumulating within the components during conditions of flooding in accordance with ASCE 24;
5. **Certifications.** Applications shall contain applicable certifications in accordance with Section G104.5; and
6. **Special inspections.** Special inspections shall be as required by Section G105.

G304.1.2 Nonresidential. For buildings or structures that are nonresidential (for flood zone purposes), all post-FIRM new buildings and substantial improvements shall comply with the applicable requirements in Chapter G3 and ASCE 24, and shall comply with either of the following:

1. **Elevation option.** The structure shall comply with Items 1 through 6 of Section G304.1.1; or
2. **Dry floodproofing option.** The structure shall comply with the following:
 - 2.1. Elevation of dry floodproofing. The structure shall be dry floodproofed to at or above the design flood elevation specified in ASCE 24, Table 6-1;
 - 2.2. Dwelling units. Where dwelling units are located in a building utilizing the dry floodproofing option, the following additional requirements shall be met:
 - 2.2.1. All rooms and spaces within dwelling units shall be located at or above the design flood elevation;
 - 2.2.2. No more than one toilet and one sink shall be located below the design flood elevation. Any such toilet room shall not be located within a dwelling unit and shall be no larger than required by Chapter 11; and no roughing therein shall be permitted to accommodate additional fixtures;
 - 2.2.3. No more than one two-compartment laundry tray shall be permitted below the design flood elevation;
 - 2.2.4. No kitchens or kitchenettes shall be permitted below the design flood elevation;

2.2.5. A restrictive declaration noting the above restrictions shall be filed with the City Register or County Clerk, and the page number and liber number shall be identified in the permit application and on the certificate of occupancy.

- 2.3. **Utilities and equipment.** Utilities and attendant equipment shall be located within the dry floodproofed enclosure, or may be located outside the dry floodproofed enclosure provided that they are located at or above the design flood elevation specified in ASCE 24, Table 7-1, or are constructed so as to prevent water from entering or accumulating within the components during conditions of flooding in accordance with ASCE 24.
- 2.4. **Certifications.** Applications shall contain applicable certifications in accordance with Section G104.5; and
- 2.5. **Special inspections.** Special inspections shall be as required by Section G105.

G304.2 V-Zone construction standards. In addition to the requirements of ASCE 24, the following standards shall apply to post-FIRM construction and substantial improvements located within V-Zones.

1. **Foundation.** The lowest floor shall be elevated on adequately anchored pilings or columns and securely anchored to such piles or columns to prevent floatation, collapse and lateral movement resulting from wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16 and this appendix.
2. **Lowest horizontal member.** The lowest portion of the lowest horizontal structural member of the lowest floor (excluding the pilings or columns) shall be at or above the design flood elevation specified in ASCE 24, Table 4-1.
3. **Below the lowest horizontal member.** Spaces below the lowest horizontal member shall be either:
 - 3.1. Free of obstructions; or
 - 3.2. Enclosed with breakaway walls providing unconditioned space useable solely for parking of vehicles, building access, storage or crawl space. Such breakaway walls shall:
 - 3.2.1. Be of an open lattice type construction only;
 - 3.2.2. Meet the load requirements of Section 5.3.2.3 of ASCE 7; and
 - 3.2.3. Meet the additional requirements of ASCE 24.
4. **Materials.** Only flood-damage-resistant materials and finishes shall be utilized below the design flood elevation specified in ASCE 24, Table 5-1;

5. **Utilities and equipment.** Utilities and attendant equipment shall be located at or above the design flood elevation specified in ASCE 24, Table 7-1, or shall be constructed so as to both resist the wave action and prevent water from entering or accumulating within the components during conditions of flooding in accordance with ASCE 24;
6. **Prohibitions.** The following shall be prohibited in V-Zones:
 - 6.1. Development, including land-disturbing activities, seaward of the reach of mean high tide;
 - 6.2. Use of fill for structural support of buildings; and
 - 6.3. Man-made alterations of sand dunes that would increase potential damage to buildings.
7. **Certifications.** Applications shall contain applicable certifications in accordance with Section G104.5; and
8. **Special inspections.** Special inspections shall be as required by Section G105.

SECTION BC G305 MANUFACTURED HOMES

G305.1 General. Manufactured homes shall be prohibited in V-Zones. Within A-Zones, all new, replaced or substantially improved manufactured homes shall be:

1. Installed using methods and practices that minimize flood damage;
2. Elevated to or above the design flood elevation specified in ASCE 24, Table 2-1;
3. Placed on a permanent, reinforced foundation that is designed in accordance with ASCE 24; and
4. Securely anchored to a foundation system designed to resist flotation, collapse and lateral movement. Methods of anchoring are authorized to include, but are not limited to, use of over-the-top or frame ties to ground anchors. This requirement is in addition to applicable state and local anchoring requirements for resisting wind forces.

SECTION BC G306 RECREATIONAL VEHICLES

G306.1 General. The following shall apply to placement of all recreational vehicles within areas of special flood hazard:

1. Placement in V-Zones and floodways prohibited. The placement of recreational vehicles is prohibited in V-Zones and floodways.
2. Temporary placement in A-Zones. Within A-Zones, recreational vehicles shall be fully licensed and ready for highway use, and shall be placed on a site for less than 180 consecutive days.
3. Permanent placement in A-Zones. Within A-Zones, recreational vehicles that are not fully licensed and ready for highway use, or that are to be placed on a site for 180 or

more consecutive days, shall meet the requirements of Section G305 for manufactured homes.

SECTION BC G307 TANKS

G307.1 Underground tanks. Underground tanks in areas of special flood hazard shall be designed, constructed, installed, and anchored to prevent flotation, collapse and lateral movement resulting from hydrostatic loads, including the effects of buoyancy, during conditions of flooding to the design flood elevation, in accordance with ASCE 24.

G307.2 Above-ground tanks. Above-ground tanks in areas of special flood hazard shall be:

1. Elevated to or above the design flood elevation specified in ASCE 24, Table 7-1; or
2. Designed, constructed, installed, and anchored to prevent flotation, collapse and lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of flooding to the design flood elevation, in accordance with ASCE 24.

G307.3 Tank inlets and vents. In areas of special flood hazard, tank inlets, fill openings, outlets and vents shall be:

1. Installed at or above the design flood elevation specified in ASCE 24, Table 7-1, or fitted with covers designed to prevent the inflow of floodwater and outflow of the contents of the tanks during conditions of flooding to the design flood elevation, in accordance with ASCE 24; and
2. Anchored to prevent lateral movement resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy, during conditions of flooding to the design flood elevation, in accordance with ASCE 24.

SECTION BC G308 OTHER DEVELOPMENT

G308.1 Accessory structures. Accessory structures shall be anchored to prevent flotation, collapse and lateral movement resulting from hydrostatic loads, including the effects of buoyancy, during conditions of flooding to the design flood elevation. Enclosed accessory structures usable solely for parking or storage shall be wet floodproofed and shall have flood openings to allow for the automatic entry and exit of flood waters designed in accordance with ASCE 24.

G308.2 Fences in floodways. Fences in floodways that may block the passage of floodwaters, such as stockade fences and wire mesh fences, shall meet the requirement of Section G103.5.

G308.3 Oil derricks. Oil derricks located in areas of special flood hazard shall be designed in conformance with ASCE 24.

G308.4 Prefabricated swimming pools in floodways. Prefabricated swimming pools in floodways shall meet the requirements of Section G103.5.

**CHAPTER G4
REFERENCED STANDARDS**

**SECTION BC G401
GENERAL**

G401.1 General. This chapter lists the standards that are referenced in various sections of this appendix. The standards are listed herein by the promulgating agency of the standard, the standard identification, the effective date and title and the section or sections of this document that reference the standard.

G401.2 Subsequent additions, modifications or deletions. Refer to the rules of the department for any subsequent additions, modifications or deletions that may have been made to these standards in accordance with Section 28-103.19 of the *Administrative Code*.

G401.3 Applicability. The application of the referenced standards shall be as specified in Section 102.4.

G401.4 Reserved.

G401.5 Reserved.

G401.6 Reserved.

**SECTION BC G402
STANDARDS**

ASCE 7-02	Minimum Design Loads for Buildings and Other Structures	G104.5.2, G201.2, G304.2
ASCE 24-05*	Flood-Resistant Design and Construction	G103.1, G104.3, G104.5.1, G104.5.2, G105.2, G105.3.1, G201.2, G301.1, G303.2, G303.3, G303.4, G303.7, G304.1.1, G304.1.2, G304.2, G305.1, G307.1, G307.2, G307.3, G308.1, G308.3
FEMA FIS 360497	Flood Insurance Study, Community Number 360497, Revised September 5, 2007; Federal Emergency Management Agency	G102.2
FEMA FIRMS 360497	Flood Insurance Rate Map, Community Number 360497, Panel Numbers 1 through 0457, Revised September 5, 2007; Federal Emergency Management Agency	G102.2, G102.3, G102.3.1, G102.3.2, G103.3, G201.2
FEMA FORM 81-31	Floodproofing Certification; Federal Emergency Management Agency	G105.3

FEMA FORM 81-65	Elevation Certificate; Federal Emergency Management Agency	G105.3
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HUD 24 CFR Part 3280-94	Manufactured Home Construction and Safety Standards, 1994	G201.2
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*As modified in Chapter G5.

**CHAPTER G5
MODIFICATIONS TO REFERENCED STANDARDS**

**SECTION BC G501
MODIFICATIONS**

The following amendments are hereby made to the referenced standards listed in Section G401.

G501.1 Amendments to ASCE 24-05. The following amendments are hereby made to the applicable sections of ASCE 24-05. Refer to the rules of the department for any subsequent additions, modifications or deletions that may have been made to this standard in accordance with Section 28-103.19 of the *Administrative Code*.

Section 1.1. Section 1.1 (Scope) is amended by deleting Items 1 through 4, and by adding the following paragraph to read as follows:

The scope of this standard is as provided for in Section G102.1 of the *New York City Building Code*, Appendix G.

Section 1.1.1. A new Section 1.1.1 is added to read as follows:

1.1.1 A-Zones. Notwithstanding any other provision in this standard, no special flood hazard area in New York City shall be classified as a Coastal A-Zone. All areas of special flood hazard that are identified on the FIRM as an A-Zone shall be classified as flood hazard areas that are “other than coastal high hazard area or coastal A-Zones,” and shall comply with the applicable items in Section 1.1 as such.

Section 1.1.2. A new Section 1.1.2 is added to read as follows:

1.1.2 High-risk flood hazard areas. Notwithstanding any other provision in this standard, no special flood hazard in New York City shall be classified as alluvial fan area, flash flood area, mudslide area, ice jam and debris area, erosion-prone area, high-velocity flow area. The only applicable high-risk flood hazard areas in New York City are the Coastal High Hazard Areas (V-Zones).

Section 1.2. Section 1.2 (Definitions) is amended by modifying only the following definitions:

Coastal A Zone—Reserved.

Design flood elevation—The applicable elevation specified in Table 2-1, 4-1, 5-1, 6-1, or 7-1, depending on the structural occupancy category designated in Table 1-1.

High-risk flood hazard area—An area designated as a *coastal high hazard area*, being those areas identified on the FIRM as a *V-Zone*.

**TABLE 1-1
CLASSIFICATION OF STRUCTURES FOR FLOOD-RESISTANT DESIGN AND CONSTRUCTION
(CLASSIFICATION SAME AS NEW YORK CITY BUILDING CODE TABLE 1604.5)**

NATURE OF OCCUPANCY	STRUCTURAL OCCUPANCY CATEGORY
Buildings and other structures that represent a low hazard to human life in the event of failure, including but not limited to: <ul style="list-style-type: none"> • Agricultural facilities • Certain temporary facilities • Minor storage facilities 	I
Buildings and other structures except those listed in Structural Occupancy Categories I, III and IV	II
Buildings and other structures that represent a substantial hazard to human life in the event of failure, including but not limited to: <ul style="list-style-type: none"> • Buildings and other structures where more than 300 people congregate in one area • Buildings and other structures with elementary school, secondary school or day-care facilities with an occupant load greater than 250 • Buildings and other structures with an occupant load greater than 500 for colleges or adult education facilities • Health care facilities with an occupant load of 50 or more resident patients but not having surgery or emergency treatment facilities • Jails and detention facilities • Power-generating stations, water treatment for potable water, waste water treatment facilities and other public utility facilities not included in Structural Occupancy Category IV • Buildings and other structures not included in Structural Occupancy Category IV containing sufficient quantities of toxic or explosive substances to be dangerous to the public if released 	III
Buildings and other structures designed as essential facilities including, but not limited to: <ul style="list-style-type: none"> • Hospitals and other health care facilities having surgery or emergency treatment facilities • Fire, rescue and police stations and emergency vehicle garages • Designated earthquake, hurricane or other emergency shelters • Designated emergency preparedness, communication, and operation centers and other facilities required for emergency response • Power-generating stations and other public utility facilities required as emergency backup facilities for Structural Occupancy Category IV structures • Structures containing highly toxic materials as defined by Section 307 where the quantity of the material exceeds the maximum allowable quantities of Table 307.7(2) of the <i>New York City Building Code</i> • Aviation control towers, air traffic control centers and emergency aircraft hangars • Buildings and other structures having critical national defense functions • Water treatment facilities required to maintain water pressure for fire suppression 	IV

Nonresidential—As defined in Section G201 of the *New York City Building Code*, Appendix G.

Residential—As defined in Section G201 of the *New York City Building Code*, Appendix G.

Section 1.4.3. Table 1-1 of Section 1.4.3 (Classification of Structures) is amended to read as follows:

Section 2.3. Table 2-1 of Section 2.3 (Elevation Requirements) is amended to read as follows:

**TABLE 2-1
MINIMUM ELEVATION OF THE TOP OF LOWEST FLOOR
RELATIVE TO DESIGN FLOOD ELEVATION (DFE)—A-ZONES^a**

STRUCTURAL OCCUPANCY CATEGORY ^b	MINIMUM ELEVATION OF LOWEST FLOOR
I	DFE = BFE
II ^c	DFE = BFE
III ^c	DFE = BFE + 1 ft
IV ^c	DFE = BFE + 2 ft

- a. Minimum elevations shown in Table 2-1 do not apply to V Zones (see Table 4-1). Minimum elevations shown in Table 2-1 apply to A-Zones unless specific elevation requirements are given in Section 3 of this standard.
- b. See Table 1-1 or Table 1604.5 of the *New York City Building Code*, for structural occupancy category descriptions.
- c. For nonresidential buildings and nonresidential portions of mixed-use buildings, the lowest floor shall be allowed below the minimum elevation if the structure meets the floodproofing requirements of Section 6.

Section 4.1.1. Section 4.1.1 (Identification of Coastal High Hazard Areas and Coastal A Zones) is amended to read as follows:

4.1.1 Identification of Coastal High Hazard Areas and Coastal A Zones. For the purposes of this standard, “Coastal High Hazard Areas” shall mean those locations where an area has been designated as subject to high velocity wave action on a community’s flood hazard map (V-Zones). No special flood hazard area in New York City shall be classified as a Coastal A-Zone.

Section 4.4. Table 4-1 of Section 4.4 (Elevation Requirements) is amended to read as follows:

**TABLE 4-1
MINIMUM ELEVATION OF BOTTOM OF LOWEST SUPPORTING
HORIZONTAL STRUCTURAL MEMBER OF LOWEST FLOOR
RELATIVE TO DESIGN FLOOD ELEVATION (DFE)—V ZONES**

STRUCTURAL OCCUPANCY CATEGORY ^a	MEMBER ORIENTATION RELATIVE TO THE DIRECTION OF WAVE APPROACH	
	Parallel ^b	Perpendicular ^b
I	DFE = BFE	DFE = BFE
II	DFE = BFE	DFE = BFE
III	DFE = BFE + 1 ft	DFE = BFE + 2 ft
IV	DFE = BFE + 1 ft	DFE = BFE + 2 ft

- a. See Table 1-1, or Table 1604.5 of the *New York City Building Code*, for structural occupancy category descriptions.
- b. Orientation of lowest horizontal structural member relative to the general direction of wave approach; parallel shall mean less than or equal to +20 degrees from the direction of approach; perpendicular shall mean greater than +20 degrees from the direction of approach.

Section 4.6.1. Section 4.6.1 (Breakaway Walls) is amended by adding the following sentence:

All breakaway walls enclosing spaces below the DFE in V-Zones shall be open lattice, and not solid, with such enclosed spaces constructed as unconditioned per the *New York State Energy Conservation Construction Code*.

Section 5.1. Table 5-1 of Section 5.1 (Materials, General) is amended to read as follows:

**TABLE 5-1
MINIMUM ELEVATION, RELATIVE TO DESIGN FLOOD
ELEVATION (DFE), BELOW WHICH FLOOD-DAMAGE-RESISTANT
MATERIALS SHALL BE USED**

STRUCTURAL OCCUPANCY CATEGORY ^a	A-ZONE	V-ZONES	
		Orientation Parallel ^b	Orientation Perpendicular ^b
I	DFE = BFE	DFE = BFE	DFE = BFE
II	DFE = BFE	DFE = BFE	DFE = BFE
III	DFE = BFE + 1 ft	DFE = BFE + 2 ft	DFE = BFE + 3 ft
IV	DFE = BFE + 2 ft	DFE = BFE + 2 ft	DFE = BFE + 3 ft

- a. See Table 1-1, or Table 1604.5 of the *New York City Building Code*, for structural occupancy category descriptions.
- b. Orientation of lowest horizontal structural member relative to the general direction of wave approach; parallel shall mean less than or equal to +20 degrees from the direction of approach; perpendicular shall mean greater than +20 degrees from the direction of approach.

Section 5.2.6. Section 5.2.6 (Finishes) shall be amended to read as follows:

5.2.6 Finishes and other materials. Interior and exterior finishes, as well as any materials not otherwise provided for in Sections 5.2.1 through 5.2.5, shall be flood damage-resistant materials in accordance with FEMA Technical Bulletin 2-93, Flood-resistant Materials Requirement for Buildings Located in Special Flood Hazard Areas, or shall be required to be approved by the authority having jurisdiction.

Section 6.2. Table 6-1 of Section 6.2 (Dry Floodproofing) is amended to read as follows:

**TABLE 6-1
MINIMUM ELEVATION OF FLOODPROOFING, RELATIVE TO
DESIGN FLOOD ELEVATION (DFE)—A-ZONES**

STRUCTURAL OCCUPANCY CATEGORY ^a	MINIMUM ELEVATION OF FLOODPROOFING ^b
I	DFE = BFE
II ^c	DFE = BFE
III	DFE = BFE + 1 ft
IV	IDFE = BFE + 2 ft

- a. See Table 1-1, or Table 1604.5 of the *New York City Building Code*, for structural occupancy category descriptions.
- b. Wet or dry floodproofing shall extend to the same level.
- c. Dry floodproofing of residential buildings and residential portions of mixed use buildings shall not be permitted.

Section 6.2.2. Item 3 of Section 6.2.2 (Dry Floodproofing Requirements) is amended to read as follows:

3. Have either:

All required means of egress elevated to or above the applicable DFE specified in Table 6-1, capable of providing human ingress and egress during the design flood; or

At least one elevated door located in close proximity to each required means of egress to the exterior that is to be blocked by flood shields or flood control devices, such that the face of the elevated door itself, and not merely its directional signage, is clearly visible to a person approaching the blocked egress door(s). Such door(s) shall be elevated to at or above the applicable DFE specified in Table 6-1, capable of providing human ingress and egress during the design flood. Such door(s) shall meet all *New York City Building Code* requirements for a required means of egress to the exterior of the structure including hardware and signage, but shall not be required to comply with the occupant load calculations, unless the structure is intended for occupancy during the design flood. Such door may be accessed by open steps and shall not be required to comply with Chapter 11 of the *New York City Building Code* if its only purpose is to provide supplemental egress and ingress during conditions of flooding and to provide emergency egress at other times.

Section 7.1. Table 7-1 of Section 7.1 (General) is amended to read as follows (see Table 7-1 below):

Section 7.5.1. A new section 7.5.1 is added to read as follows:

7.5.1 Elevator signage. Where there is potential for an elevator cab to descend below the elevation specified in Table 7-1 into a wet floodproofed space, the elevator shall be equipped with controls that will prevent the cab from descending into floodwaters. Permanent, durable, and washable signage shall be placed in the elevator cab and in the elevator lobby on any story subject to flooding, stating that “In the event of flooding, water sensors in the elevator shaft will prevent the elevator from descending to [description of story, e.g., ground floor, first floor, parking level, etc.] and will automatically cause the elevator to rise to [description of story, e.g., second floor, mezzanine, etc.]”

Section 9.3.1. The second sentence of the first paragraph of Section 9.3.1 (Attached Garages and Carports) is amended to read as follows:

Wet floodproofed garages and carports are permitted below elevations specified in Table 2-1 provided the lowest level of the garage or carport is at or above grade on at least one side,

the garage or carport walls meet the opening requirements of Section 2.6, and the lowest level of the garage or carport is not classified as a “lowest floor” pursuant to Appendix G of the *New York City Building Code*.

Section 9.5. Section 9.5 (Pools) is amended by adding a new paragraph to read as follows:

Mechanical equipment for pools such as pumps and water heaters, and associated electrical wiring, shall comply with Section 7.2 and 7.4.

G501.2 Reserved.

G501.3 Reserved.

**SECTION BC G601
RESERVED**

**SECTION BC G701
RESERVED**

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**TABLE 7-1
MINIMUM ELEVATION OF UTILITIES AND ATTENDANT EQUIPMENT RELATIVE TO DESIGN FLOOD ELEVATION (DFE)**

STRUCTURAL OCCUPANCY CATEGORY ^a	LOCATE UTILITIES AND ATTENDANT EQUIPMENT ABOVE ^b		
	A-Zones	V-Zones	
		Orientation Parallel ^c	Orientation Perpendicular ^c
I	DFE = BFE	DFE = BFE	DFE = BFE
II	DFE = BFE	DFE = BFE	DFE = BFE
III	DFE = BFE + 1 ft	DFE = BFE + 2 ft	DFE = BFE + 3 ft
IV	DFE = BFE + 2 ft	DFE = BFE + 2 ft	DFE = BFE + 3 ft

a. See Table 1-1, or Table 1604.5 of the *New York City Building Code*, for structural occupancy category descriptions.

b. Locate utilities and attendant equipment above elevations shown unless otherwise provided in the text.

c. Orientation of lowest horizontal structural member relative to the general direction of wave approach; parallel shall mean less than or equal to +20 degrees from the direction of approach; perpendicular shall mean greater than +20 degrees from the direction of approach.

