

HURRICANE SANDY

IN NEW JERSEY
AND NEW YORK



Background on Floodplain Management and Building Codes in New Jersey, New York State, and New York City

This appendix contains material supplementary to Chapter 2, including summary descriptions of the floodplain management programs, building code agencies, and the flood provisions of and the building codes of the State of New Jersey, New York State, and New York City.

G.1 State of New Jersey

Section 2.1 of the Mitigation Assessment Team (MAT) report briefly describes the two departments that have statutory authorities and programs that affect floodplain management at the local jurisdiction level in New Jersey: the New Jersey Department of Environmental Protection (NJDEP) and Department of Community Affairs (NJDECA). This section of Appendix G details the programs of those agencies and the flood provisions of the New Jersey Uniform Construction Code (UCC).

G.1.1 Floodplain Management in New Jersey

The NJDEP is charged with managing the State's natural resources and fulfilling a wide variety of environmental protection responsibilities. Programs that have bearing on floodplain management are administered by the Office of Engineering and Construction, which is responsible for administering shore protection, dam restoration, and flood control projects.

Flood Hazard Area Mapping and Community Assistance. The Floodplain Management Control Section of the NJDEP Bureau of Dam Safety and Flood Control¹ consists of units that are charged with

¹ <http://www.nj.gov/dep/floodcontrol/about.htm>.

implementing flood protection and control measures, performing flood hazard analyses and map production, and providing assistance to communities.

Under the 1972 Flood Hazard Area Control Act, the NJDEP is authorized to adopt floodway regulations and to promulgate minimum standards for local rules and regulations concerning development in flood fringe areas. The implementing rules, known as the Flood Hazard Area Control Act Rules, are required to be updated every 5 years.

In riverine areas, the State uses a standard for flood hazard area delineation that differs from the “base flood” (1-percent-annual-chance flood) used by the Federal Emergency Management Agency (FEMA). The New Jersey Flood Hazard Area is computed by using the “design flood discharge” that was defined in 1974 as the 100-year discharge plus 25 percent. The design flood discharge is used to produce the Flood Hazard Area Design Flood Elevation (FHADFE). Also defined in 1974, the State’s floodway standard is based on a 0.2-foot rise (FEMA uses a 1-foot rise). In coastal areas, the New Jersey Flood Hazard Area is equivalent to the Special Flood Hazard Area (SFHA) shown on Flood Insurance Rate Maps (FIRMs).

Because some of the State’s standards differ from FEMA’s, New Jersey Flood Hazard Area maps have traditionally been developed and maintained by the State as separate maps. However, the NJDEP now produces maps under a Cooperating Technical Partnership Agreement with FEMA, which means revised Flood Insurance Studies (FISs) and FIRMs prepared with new or updated hydraulic modeling will show the New Jersey-specific FHADFE.

Local jurisdictions are required to use the FHADFE in the administration and enforcement of their local flood damage prevention regulations and the UCC. See Section G.1.5 for a description of the “prior approval” process that is expected to be followed to ensure the applicable flood elevation requirements are used to enforce the UCC.

The NJDEP was in the process of drafting amendments to the Flood Hazard Area Control Act Rules when Hurricane Sandy occurred. Some of those draft amendments were incorporated into the Emergency Rule issued on January 24, 2013, to adopt emergency amendments to the rules (N.J.A.C. 7:13). The most significant effect of the emergency amendments was the adoption of FEMA’s Advisory Base Flood Elevations (ABFEs; see Section 1.4.2 of the MAT report), although other amendments altered some requirements for buildings in flood hazard areas.

Community Assistance. The Community Assistance Program Unit, part of the NJDEP Floodplain Management Section, serves as the National Flood Insurance Program (NFIP) State Coordinating Agency (see Appendix F). In this capacity, the unit is the liaison between FEMA and New Jersey communities that elect to participate in the NFIP. The unit provides a wide range of technical

**PROPERTY CONDITION
DISCLOSURE FORM**

The Property Condition Disclosure Form is specified in N.J.A.C. 13:45A-29.1. The form is not mandatory and, although intended to limit the liability of licensed real estate professionals, it is not widely used. It has three questions specific to flood hazards:

- Are you aware if the property or any of the structures on it have ever been damaged by fire, smoke, wind, or flood?
- Is the property in a flood hazard zone?
- Are you aware of any drainage or flood problems affecting the property?

assistance. As of October 10, 2013, 551 of the State's 556 floodprone communities have adopted and enforce regulations that make them eligible to participate in the NFIP (four communities elect not to participate and one community is suspended) (FEMA 2013a).²

Model Local Flood Damage Prevention Ordinances.

The Community Assistance Program Unit develops and maintains several versions of the model flood damage prevention ordinance.³ Communities use a version based on the flood

zones shown on their FIRMs and whether base flood elevations (BFEs) are provided. The “(d)–(e)” version incorporates all flood zones (Zone A with floodway and Zone V) and addresses areas with and without BFEs. The model “(d)–(e)” ordinance uses different language than the building code and has a few differences from the NFIP requirements for buildings, including:

- +Section 5.1-6, Enclosure Openings, requires the walls of all fully enclosed areas (under elevated buildings) in all SFHAs to have openings. NFIP requires openings only for enclosures of buildings in Zone A.
- +Section 5.4-1, Location of Structures, limits placement of manufactured homes in coastal high hazard areas to existing manufactured home parks or subdivisions. NFIP permits placement of manufactured homes in all flood hazard areas.

Although the model flood damage prevention ordinances meet the NFIP minimum requirements, they include provisions for buildings that are not consistent with the UCC, and they do not explicitly refer to the UCC. Because communities are also responsible for enforcing the UCC, and because, in general, the more restrictive of local ordinances and the UCC prevails, there is a potential for conflict that must be resolved by local officials—the local floodplain administrator and the local construction official who is responsible for enforcing the UCC (see Section G.1.2 for more information on enforcing the UCC).

Flood Hazard Area Rules and Permits. The NJDEP Division of Land Use Regulations⁴ has the authority to regulate flood hazard areas and issue permit authorizations. The rules for the program “incorporate stringent standards for development in flood hazard areas and adjacent to surface waters in order to mitigate the adverse impacts to flooding and the environment that can be caused by such development.” The State's policy is that, unless properly controlled, development within flood hazard areas can exacerbate the intensity and frequency of flooding by reducing flood storage, increasing stormwater runoff, and obstructing the movement of floodwater. In addition, structures that are improperly built in flood hazard areas are subject to flood damage and threaten the health, safety, and welfare of those who use the structures. The implementing regulations are lengthy and detailed.

COMMUNITY RATING SYSTEM

- 62 of New Jersey's 551 NFIP-participating communities also participate in the CRS (as of October 2013).
- 66 of New Jersey's CRS communities suffered damage from Hurricane Sandy ranging from minimal to heavy.

SOURCES: FEMA 2013A AND FEMA 2013C

² <http://www.fema.gov/cis/NJ.pdf>.

³ <http://www.nj.gov/dep/floodcontrol/modelord.htm>.

⁴ http://www.state.nj.us/dep/landuse/fha_main.html.

The NJDEP has four types of permit authorizations that may be required in addition to permits and approvals issued by communities. Individual permits are required for activities that do not fit the criteria for simpler and faster authorization under Permits-by-Rule and General Permits, which are available for specific activities identified in the rules. Emergency Permits are issued under specific circumstances and if environmental degradation or impacts to property or the public health, safety, and welfare would occur before an appropriate permit can be obtained.

Buildings and Flood Hazard Area Permits. The Flood Hazard Area Control Act Rules govern development in flood hazard areas. The rules contain a number of provisions that are more specific and some that exceed the minimum NFIP requirements for buildings. However, some provisions are not consistent with the NFIP, and some provisions are not consistent with the UCC (i.e., in both cases, are either less restrictive or more restrictive).

On January 24, 2013, in part as a response to Hurricane Sandy, Governor Chris Christie announced an Emergency Rule to amend the Flood Hazard Area Control Act Rules. The NJDEP promulgated the rules, unchanged, on May 6, 2013. The FEMA Building Science Branch formally submitted comments to summarize a number of inconsistencies that were identified between the proposed rules and the NFIP minimum requirements for buildings (and also noted inconsistencies with the flood provisions of the New Jersey UCC). The most significant inconsistencies between the Emergency Rule and the NFIP requirements are as follows:

- + The Emergency Rule allows wet floodproofing of new non-residential buildings and those undergoing Substantial Improvement; the NFIP limits application of measures characterized as “wet floodproofing” to enclosures below elevated buildings and certain accessory structures used for parking and storage.
- + The Emergency Rule does not make a distinction between flood zones and does not specify foundation types based on flood zone; the NFIP makes a distinction between Zone A and Zone V and limits foundations in Zone V to pilings and columns.
- + Elevation requirements in the Emergency Rule refer to the “lowest floor”; the NFIP specifies the lowest horizontal structural member of the lowest floor as the reference point in buildings in Zone V.
- + The Emergency Rule uses inconsistent terms to describe allowable uses of enclosures below elevated buildings (including “not used for habitation”); the NFIP specifies that enclosures may be used only for parking of vehicles, storage, and building access.

Passaic River Basin Flood Advisory Commission. In 2010, in the aftermath of severe flooding caused by multiple storms, Governor Chris Christie signed an executive order creating an advisory commission to develop and recommend solutions to minimize the impact of chronic flooding that has long plagued the Passaic River Basin. The Commission’s report made 15 recommendations, some of which have statewide impact (Passaic River Basin Flood Advisory Commission 2011).

Recommendation 7 calls for the State to adopt the NFIP regulations “in their entirety” to make all State agency requirements consistent with the requirements that communities adopt in their local flood damage prevention ordinances. In addition, the Commission encouraged the State to

provide “technical assistance to communities that wish to adopt more stringent flood risk reduction regulation standards.”

The report also noted that local floodplain administrators “lack the training and experience required to fully understand the NFIP requirements, to identify whether proposed construction is located in a floodplain and if the proposed renovation or expansion is a substantial improvement, or how to perform substantial damage inspections.”

G.1.2 Building Codes in New Jersey

The New Jersey State Uniform Construction Code Act (or UCC Act), which was signed into law in 1975, authorizes the Commissioner of the NJDCA to adopt and enforce rules pertaining to construction codes and provides for the administration and enforcement of those rules throughout the State. The UCC, which was first promulgated in 1977, contains the requirements of the UCC Act and all rules issued under the Act relating to the administration and enforcement of construction regulations.

Currently, the UCC comprises technical subcodes: building, electrical, fire protection, plumbing, fuel gas installations, mechanical installations, one- and two-family dwellings, accessible (barrier-free) construction, rehabilitation of existing buildings, construction of manufactured homes, asbestos hazard abatement, radon hazard abatement, and playground safety. Most of the technical subcodes are based on the International Code Series (I-Codes) with State amendments. As of early 2013, the NJDCA had initiated the process to update the UCC to the 2012 I-Codes from the 2009 editions and to promulgate State amendments.

All communities in the State are required to enforce the UCC, and construction permits are required for any new construction and for work on existing buildings. There are some exceptions to the permit requirements, such as for ordinary maintenance, which includes routine repair. Certain buildings and structures are exempt from the requirement to obtain construction permits (listed in N.J.A.C. 5:23-2.14, which is summarized in Section G.1.3).

State-licensed, municipally employed, code enforcement professionals—construction officials, subcode officials, and inspectors—are responsible for enforcing the UCC. Construction officials oversee subcode officials and inspectors, but a construction official cannot overrule a subcode official on a technical issue in a field in which the construction official does not hold a license. A subcode official is a State-licensed code enforcement official who is responsible for enforcing a specific technical subcode of the UCC. Inspectors are State-licensed code enforcement officials who enforce the requirements of a specific technical subcode under the supervision of a subcode official. The NJDCA provides continuing education programs semi-annually to all licensed code officials and inspectors.

Regulation of certain activities is reserved for the NJDCA, including electrical generating stations and substations (including nuclear), incineration plants, solid waste disposal plants, casino hotels, public structures intended to hold human remains, certain defined healthcare facilities, public school facilities, prototype plans intended for use in more than one municipality, and stadiums, arenas, and theaters with an occupant capacity of 5,000 or more. For those buildings, the NJDCA performs plan reviews, while local enforcing agencies retain the responsibility for performing field inspections.

The NJDCA Bureau of Construction Project Review⁵ performs plan reviews and issues releases of plans for specific types of buildings, including State-owned and -leased buildings of State colleges; the New Jersey Turnpike, Garden State Parkway, and Atlantic City Expressway; the New Jersey Sports and Exposition Authority; Atlantic City Airport; South Jersey Port Corporation; and all State parks and State agencies. The Bureau also performs plan reviews, issues permits, and conducts inspections for projects undertaken by the New Jersey Schools Development Authority. In addition, the Bureau provides plan review and release for all of New Jersey's public schools. The Bureau also performs plan reviews and inspections in municipalities in which NJDCA serves as the local code enforcement agency.

The NJDCA Division of Codes and Standards periodically publishes the *Construction Code Communicator*,⁶ a newsletter with articles on topics of interest to local construction officials, architects, engineers, builders, electricians, plumbers, and others who undertake projects regulated by the UCC. The Division also occasionally issues bulletins (and updates previously issued bulletins)⁷ on topics related to enforcement of the UCC. The Division uses the bulletins to issue specialized hazard maps of New Jersey at a greatly enlarged scale, including the seismic hazard map, the wind speed map, and the ground snow loads map, to support application of UCC requirements. The Division's Web page includes a link to a wind map of the State,⁸ and links to wind speed maps are provided for certain counties in which the 100-mile-per-hour wind speed line is marked.

By regulation, the NJDCA requires all communities and applicants to use a standard construction permit application (N.J.A.C. 5:23-4.5(b)2). Applicants are required to provide on the form, along with other information, the estimated cost of proposed work (including normal costs for material or labor provided at no cost to the owner). The applicant must include a statement that "all required State, county and local prior approvals have been given, including such certification as the construction official may require." See Section G.1.5 for a description of the "prior approval" process.

The NJDCA maintains a series of standardized forms⁹ that are based on the UCC and that communities and applicants must use. The "flood hazard zone" and the BFE must be identified on the standard permit application.

G.1.3 New Jersey Subcodes and Code Amendments (Flood)

The current edition of the UCC is based on the 2009 editions of the International Building Code (IBC), International Residential Code (IRC), International Mechanical Code (IMC), and International Fuel Gas Code (IFGC) (the plumbing code is the National Standard Plumbing Code), with State-specific amendments. The New Jersey rehabilitation subcode is developed and maintained by the State. (The first edition of the International Existing Building Code [IEBC], published in 2003, originated with the New Jersey rehabilitation code.) The State has its own regulations for administration and enforcement, replacing those provisions of the I-Codes.

5 <http://www.state.nj.us/dca/divisions/codes/offices/bcpr.html>.

6 <http://www.state.nj.us/dca/divisions/codes/publications/ccc.html>.

7 <http://www.state.nj.us/dca/divisions/codes/resources/bulletins.html>.

8 http://www.state.nj.us/dca/divisions/codes/resources/pdfs/wmap_nj_m.pdf.

9 <http://www.state.nj.us/dca/divisions/codes/resources/constructionpermitforms.html>.

UCC Administration and Enforcement of Codes (N.J.A.C. 5:23, Subchapter 2). In large part, the provisions of this subchapter are similar to the administration and enforcement provisions of the I-Codes. The rule is clear that permits are required, except for ordinary maintenance, and that “no provision of any municipal zoning or other municipal code shall conflict, govern or have effect. Where the provisions herein specify requirements with respect to location, use, permissible area and height, and the municipal zoning code establishes requirements as well, then the more restrictive requirements of this code or the zoning code shall govern.”

A specific provision (N.J.A.C. 5:23-2.9) stipulates that no variations or exceptions from the requirements of any subcode or the regulations may be made except upon specific findings that strict compliance, if required, would result in “practical difficulty” to the owner, and that if granted “will not jeopardize the health, safety and welfare of intended occupants and the public generally.” Applications for variations shall state specifically the requirement from which a variation is sought, the “manner by which strict compliance with said provisions would result in practical difficulties,” the nature and extent of such practical difficulties, and feasible alternatives that would “adequately protect the health, safety and welfare of the occupants or intended occupants and the general welfare.” In flood hazard areas, requests for variations should be handled by the “prior approval” process, which involves the local floodplain administrator in the determination as to whether a variation may be granted (see Section G.1.5).

Construction Permits, When Required (N.J.A.C. 5:23-2.14). Certain types of activities and certain structures are listed as exceptions to the requirement to obtain building permits. Some of the listed structures are considered “development” as that term is defined in local flood damage prevention ordinances (and for which floodplain development permits should be required). Among the listed exceptions are a number of temporary structures smaller than specified sizes (including temporary structures, temporary tents and membrane structures, and temporary greenhouses), “garden-type utility sheds” smaller than 100 square feet, and retaining walls less than 4 feet in height.

Inspections (N.J.A.C. 5:23-2.18). Preliminary inspections of buildings are authorized, but not required. Inspections during construction are required. For new construction and additions, a foundation location survey is required to show building footprints and ground elevations. For buildings in flood hazard areas, the foundation location survey is to include the flood hazard certificates required by the codes.

Building Subcode (N.J.A.C. 5:23-3.14). The scope of the code includes only new buildings and structures (IBC Chapter 34, Existing Buildings, is deleted). Work on existing buildings is subject to the existing building subcode, which prompted NJDCA to remove Substantial Improvement and Substantial Damage from the scope statement of Section 1612.1, Flood Loads. IBC Appendix G, Flood-Resistant Construction, is not adopted.

Residential Subcode (N.J.A.C. 5:23-3.21). Section R322, Flood-Resistant Construction, is modified in several respects:

- +References to establishment of flood hazard areas in Table R301.2(1) are deleted. (Communities adopt flood maps in their local flood damage prevention ordinances.)

- +Provisions that apply to existing dwellings, including text in Section R322.1.6 for protection of mechanical and electrical systems, are removed because they pertain to replacements that are part of Substantial Improvements.
- +In Section R322.1.9, Manufactured Homes, reference to replacement units is deleted, making the section applicable only to new units.
- +The provision in Section R322.1.10 that requires construction documents for dwellings in Zone V to include documentation prepared and sealed by a registered design professional is deleted. (This provision is a minimum requirement of the NFIP.) The rationale for deletion is based on a provision of the State law that waives requirements for sealed plans “in the case of a single family home owner who prepares his or her own plans for the construction, alteration or use of a structure used or intended to be used exclusively as the owner’s private residence.”

Rehabilitation Subcode (N.J.A.C. 5:23, Subchapter 6). The State of New Jersey develops and maintains its rehabilitation subcode. Work categories subject to the requirements of the subcode are repair, renovation, alteration, reconstruction, change of use, and additions. The definition for “historic building” includes buildings that are “a contributing building to a historic district,” which is not consistent with the NFIP definition (see Section G.1.4 and Appendix F). The subcode has no specific requirements for existing buildings in flood hazard areas. The prior approval process that is supposed to be used by communities to coordinate reviews of applications for work on existing buildings in flood hazard areas is described in Section G.1.5.

G.1.4 Historic Structures in New Jersey

New Jersey maintains its own Register of Historic Places, in addition to the National Register of Historic Places. The New Jersey Register of Historic Places Act accords a degree of protection to properties on the State register from State, county, or municipal undertakings. Executive Order 215 requires all State departments, agencies, and authorities to prepare and submit an environmental assessment or environmental impact statement that addresses a State project’s impact on significant historic, archaeological, or cultural resources.

The model flood damage prevention ordinance developed by the NJDEP (described briefly in Section G.1.1) includes the NFIP definition for “historic structure.” It also includes the NFIP definition for “Substantial Improvement.” Thus, alterations of historic structures that would otherwise be determined to be Substantial Improvement of such structures are not included in the definition. In addition, the variance section of the model local ordinance contains the NFIP provision for granting variances for repair or rehabilitation of historic structures, provided the proposed work will not preclude the structure’s continued designation and the variance is the minimum necessary to preserve the historic character and design of the structure.

The New Jersey building subcode, though based on the IBC, does not retain IBC Chapter 34 but instead refers to the New Jersey rehabilitation subcode (see Section G.1.3). The rehabilitation subcode does not contain explicit provisions related to existing buildings in flood hazard areas. Requirements for Substantial Improvement and Substantial Damage, and requirements for historic buildings, are supposed to be addressed through the prior approval process described in Section G.1.5.

G.1.5 Local Enforcement and the “Prior Approval” Process in New Jersey

The statutory authority requiring local enforcement of building codes pre-dates the amendment of the Flood Damage Control Act that included specific requirements for buildings in flood hazard areas. Because both statutes address the design of buildings, the NJDCA and NJDEP interpret that the Legislature-intended regulations that flow from both statutes to control the design of buildings in flood hazard areas.

The New Jersey Administrative Code contains the administrative and enforcement provisions that communities use to enforce the UCC. “Prior approval” is defined as the necessary certifications or approvals issued or authorized by a Federal or State agency, or by any political subdivisions of the State, that are “conditions precedent to the issuance of a construction permit or certificate of occupancy or approval” (N.J.A.C. 5:23-1.4). Examples of prior approvals are listed, including zoning. For applications for building permits in flood hazard areas, the prior approval process is used to coordinate the requirements of the UCC and the requirements of local flood damage prevention regulations.

Each community in New Jersey has a designated construction official who is responsible for enforcing the UCC (and subcode officials who are responsible for enforcing the various subcodes). Each community also has a designated local floodplain administrator who is responsible for enforcing the local flood damage prevention regulations. In smaller communities, having one official designated to function in both capacities is common.

With regard to flood hazard areas, applications for building permits are reviewed by local floodplain administrators to determine whether a prior approval in the form of a floodplain development permit is required. Floodplain development permits are in writing and identify the FHADFE (see Section G.1.1) and other requirements that the applicant must satisfy to comply with the locally adopted flood damage prevention regulations. As part of the prior approval process, the local floodplain administrator determines whether proposed projects in designated floodways have the necessary documentation to demonstrate no change in flood heights. In addition, other applicable requirements of the local flood damage prevention regulations are identified, such as locally adopted freeboard, which applies to the elevation of buildings and may be different from the elevation requirements of the UCC.

Of particular importance is the premise that the local floodplain administrator will, as part of the prior approval process, review all applications for building permits for work on existing buildings to determine whether the proposed work constitutes Substantial Improvement or repair of Substantial Damage.

G.2 New York State

Section 2.2 of the MAT report briefly describes the two departments that have statutory authorities and programs that affect floodplain management at the local jurisdiction level in New York State: the New York State Department of Environmental Conservation (NYSDEC) and the Department of State’s Division of Code Enforcement and Administration (DCEA). This section of Appendix G

provides details on the programs of those agencies and the flood provisions of the New York State Uniform Fire Prevention and Building Code (Uniform Code).

G.2.1 Floodplain Management in New York State

In 1992, the New York State Legislature amended an existing law, finding that “it is in the interests of the people of this state to provide for participation” in the NFIP (New York Laws, Environmental Conservation, Article 36). Although the Legislature recognized that “land use regulation is principally a matter of local concern” and that local governments “have the principal responsibility for enacting appropriate land use regulations,” the law requires all local governments with land use restrictions over SFHAs to comply with all NFIP requirements. The law clearly advises local governments that failure to qualify for the NFIP may result in sanctions under Federal law, and specifies that the State “will cooperate with the federal government in the enforcement of these sanctions.”

The NYSDEC is charged with conserving, improving, and protecting the State’s natural resources and environment, and preventing, abating, and controlling water, land, and air pollution. Programs that have bearing on floodplain management are managed by the Bureau of Flood Protection and Dam Safety,¹⁰ which cooperates with Federal, State, regional, and local partners to protect lives and property from floods, coastal erosion, and dam failures. These objectives are accomplished through floodplain management and both structural and nonstructural means.

The 1992 law that provides for local government participation in the NFIP also requires State agencies to “take affirmative action to minimize flood hazards and losses in connection with state-owned and state-financed buildings, roads and other facilities, the disposition of state land and properties, the administration of state and state-assisted planning programs, and the preparation and administration of state building, sanitary and other pertinent codes.” In particular, the commissioner of the NYSDEC is to assist State agencies in several respects, including reviewing potential flood hazards at proposed construction sites.

The NYSDEC has several units charged with responsibilities related to floodplain management. The Coastal Management Section works to reduce coastal erosion and storm damage to protect lives, natural resources, and properties through structural and nonstructural means. The Dam Safety Section is responsible for “reviewing repairs and modifications to dams, and assuring [sic] that dam owners operate and maintain dams in a safe condition through inspections, technical reviews, enforcement, and emergency planning.” The Flood Control Projects Section is responsible for reducing flood risk to life and property through construction, operation, and maintenance of flood control facilities.

The Floodplain Management Section is responsible for reducing flood risk to life and property through management of activities, such as development in flood hazard areas, and for reviewing and developing revised flood maps. The Section serves as the NFIP State Coordinating Agency (see Appendix F) and in this capacity is the liaison between FEMA and New York communities that elect to participate in the NFIP. The Section provides a wide range of technical assistance. As of October 10, 2013, 1,498 of the State’s 1,509 floodprone communities adopt and enforce regulations (one

¹⁰ <http://www.dec.ny.gov/about/61432.html>.

community elected to not participate and 10 communities are suspended) (FEMA 2013b).¹¹

The Floodplain Management Section regularly coordinates with the DCEA on matters related to the flood provisions of the Building Code of New York State. Of specific interest are variances to the flood provisions of the code that may be submitted to the DCEA. Communities are advised that variances from local flood damage prevention laws must be considered prior to submission of requests to DCEA.

The Floodplain Management Section also promotes adoption of standards that are more restrictive than the minimum requirements of the NFIP, including higher standards that affect the design and construction of buildings in flood hazard areas. As part of the code adoption cycle that produced the 2007 Building Code of New York, the Section developed an economic analysis and justification to support a code change proposal to incorporate freeboard into the residential code so that one- and two-family dwellings are required to be elevated at least 2 feet above the BFE (see Section G.2.3).

In 2009, when revised FIRMs that show the Limit of Moderate Wave Action (LiMWA) (see text box) were completed for Nassau and Suffolk Counties, the Floodplain Management Section developed model language that communities can use to modify local flood damage prevention laws to regulate Coastal A Zones as Zone V. To be valid, the local modifications must be approved by the State Fire Prevention and Building Code Council as local amendments to the building code (see Section G.2.2). If communities do not adopt this higher standard, then the requirements of the residential code apply, which means new homes and homes that are Substantially Improved homes in designated Coastal A Zones must have lowest floors that are at or above the BFE plus 2 feet.

Model Local Law for Flood Damage Prevention.

The Floodplain Management Section maintains model local laws (also referred to as ordinances). Communities select a specific version of the model based on the flood zones shown on FIRMs and whether BFEs are provided. The model local laws are not identical to the requirements of the NFIP and the building code, but contain provisions that use different language and, in some respects, provide more specificity than the NFIP requirements for buildings, including:

COMMUNITY RATING SYSTEM

- 27 of New York's 1,498 NFIP-participating communities also participate in the CRS (as of October 2013).
- 8 of New York's CRS communities suffered damage from Hurricane Sandy ranging from minimal to heavy.

SOURCES: FEMA 2013B AND FEMA 2013C

Coastal A Zone: Area within an SFHA, landward of a Zone V or landward of an open coast without mapped Zone V. In a Coastal A Zone, the principal source of flooding must be astronomical tides, storm surges, seiches, or tsunamis, not riverine flooding. During the base flood conditions, the potential for breaking wave heights shall be greater than or equal to 1.5 feet. The inland limit of the Coastal A Zone is (a) the Limit of Moderate Wave Action if delineated on a FIRM or (b) as designated by the authority having jurisdiction.

Limit of Moderate Wave Action

(LiMWA): Line shown on FIRMs to indicate the inland limit of the 1.5-foot breaking wave height during the base flood.

¹¹ <http://www.fema.gov/cis/NY.pdf>.

- + Requires a certificate from a licensed Professional Engineer or architect that “any utility floodproofing will meet the criteria.”
- + During construction in SFHAs with BFEs, requires the local floodplain administrator to obtain certification “upon placement of the lowest floor or completion of floodproofing...of elevation of lowest floor or floodproofed elevation” and equivalent in Zone V “certification...of elevation of the bottom of the lowest structural member of the lowest floor.”
- + Requests that applications are made on a form furnished by the local floodplain administrator (a recommended “Floodplain Development Permit Application” is included).
- + Calls for periodic inspections by the local floodplain administrator “and/or the developer’s engineer or architect.”
- + Calls for a certificate of compliance that is specifically for the SFHA (a recommended “Certificate of Compliance for Development in SFHA” is included).
- + In Section 5.3-1 (Residential Structures [Except Coastal High Hazard Areas]) Elevation, requires elevation of the lowest floor:
 - + In Zone A with BFE, “to or above two feet above the base flood elevation.”
 - + In Zone A without BFE, “at least three feet above the highest adjacent grade.”
 - + In Zone AO, “above the highest adjacent grade at least as high as two feet above the depth number... (at least two feet if no depth number is specified).”
- + In Section 5.4-1 (Residential Structures [Coastal High Hazard Areas]) Elevation, allows shear walls and specifies that the “bottom of the lowest horizontal structural member supporting the lowest elevated floor (excluding columns, piles, diagonal bracing attached to the piles or columns, grade beams, pile caps and other members designed to either withstand storm action or break away without imparting damaging loads to the structure) is elevated to or above two feet above base flood elevation so as not to impede the flow of water.”
- + In Section 5.4-2 (Residential Structures [Coastal High Hazard Areas]) Determination of Loading Forces, specifies:
 - + “The structural design shall be adequate to resist water forces that would occur during the base flood. Horizontal water loads considered shall include inertial and drag forces of waves, current drag forces, and impact forces from waterborne storm debris. Dynamic uplift loads shall also be considered if bulkheads, walls, or other natural or man-made flow obstructions could cause wave runup beyond the elevation of the base flood.”
 - + “Buildings shall be designed and constructed to resist the forces due to wind pressure. Wind forces on the superstructure include windward and leeward forces on vertical walls, uplift on the roof, internal forces when openings allow wind to enter the house, and upward force on the underside of the house when it is exposed. In the design, the wind should be assumed to blow potentially from any lateral direction relative to the house.”

- + Sections 5-4.4-3 through 5-4.4-14 (Residential Structures [Coastal High Hazard Areas]) include extensive detail for pile foundations and column foundations, connectors and fasteners, beam-to-pile connections, floor and deck connections, exterior wall connections, ceiling joist/rafter connections, projecting members, roof sheathing, protection of openings, and breakaway wall design.

Although the model local laws for flood damage prevention meet the NFIP minimum requirements, they include provisions for buildings that are not consistent with the Uniform Code and the ordinances do not explicitly refer to the Uniform Code. Because communities also are responsible for enforcing the Uniform Code, and because, in general, the more restrictive of local laws and the building codes prevail, there is the potential for conflict, which must be resolved by local officials—the local floodplain administrator and the local construction official who is responsible for enforcing the building codes (see Section G.2.2).

Flood Insurance Notice. New York Laws, Insurance, Article 34, requires insurers to provide an annual notice to policyholders of homeowners and “dwelling fire personal lines” policies to explain, clearly and in plain language, that the policies do not cover loss caused by mudslide or flood, and that insurance is available under separate NFIP policies. The notice is required for all new and renewed policies.

G.2.2 Building Codes in New York State

In the early 1980s, the New York State Legislature found a “multiplicity of codes and requirements for various types of buildings administered at various levels of state and local government,” while some areas of the State had no code in effect. The law called for the State to promulgate a uniform code addressing building construction and fire prevention for residential and non-residential buildings, further stating that the codes shall “keep pace with advances in technology” (New York Laws, Executive, Article 18).

The Legislature explicitly declared that the uniform code is to be “in full force and effect in every area of the state,” and encouraged local governments to exercise their full powers to administer and enforce the Uniform Code. The importance of a statewide approach to training and qualification of personnel engaged in the administration and enforcement of codes was emphasized. The Legislature required that the Uniform Code take effect on January 1, 1984.

Every city, village, town, and county is required to enforce the Uniform Code, although municipalities may “opt out,” in which case the responsibility for enforcement falls to the county in which the municipality is located. Counties may also opt out, in which case the Department of State is required to enforce the codes. New York City is separately authorized to adopt a building code (see Section

PROPERTY CONDITION DISCLOSURE STATEMENT

Sellers in New York State are required to either complete a disclosure statement developed by the Department of State or provide buyers a credit in lieu of disclosure. The form has a note encouraging buyers to check public records, such as tax records and wetland and floodplain maps. It has two questions specific to flood hazards:

- Is any or all of the property located in a designated floodplain? If yes, explain.
- Are there any flooding, drainage, or grading problems that resulted in standing water on any portion of the property? If yes, explain.

G.3). As of late 2012, DCEA is responsible for administration and enforcement of the Uniform Code for 13 county governments, 1 town, and 1 village.

State departments, bureaus, commissions, boards, and authorities are responsible for administration and enforcement of the Uniform Code with respect to buildings owned by, or activities undertaken by, those agencies. Agencies that demonstrate competency with the Uniform Code are qualified as “construction-permitting agencies.” Other agencies may obtain permits from a construction-permitting agency. The State Education Department is responsible for code enforcement for buildings owned by school districts and boards of cooperative educational services.

The Uniform Code requires permits for any new buildings and structures, as well as for work on existing buildings, including buildings owned by local governments. There are some exceptions to the permit requirements, such as ordinary maintenance and routine repair. Certain buildings and structures are exempt from the requirement to get permits.

The State does not adopt the administrative chapters of the I-Codes. Instead, DCEA promulgates rules for minimum requirements for administration and enforcement that are used by all entities that enforce the Uniform Code. DCEA provides communities with a model local law that is consistent with the minimum requirements.¹² The model local law may be amended by communities, provided the minimum requirements are satisfied.

Regulations for the Uniform Code include variance procedures that permit any provision or requirement of the code to be varied or modified. Parties seeking variances are required to show that strict compliance with the code would (1) create an excessive and unreasonable economic burden; (2) not achieve the code’s intended objective; (3) inhibit achievement of some other important public policy; (4) be physically or legally impracticable; (5) be unnecessary in light of alternatives that ensure the achievement of the code’s intended objective or in light of alternatives that, without a loss in the level of safety, achieve the code’s intended objective more efficiently, effectively, or economically; or (6) entail a change so slight as to produce a negligible additional benefit consonant with the purposes of the code.

To be certified by the Department of State, code enforcement officials are required to complete basic training requirements and obtain 24 continuing education credits each year to maintain certification. DCEA uses a number of mechanisms to communicate with code enforcement officials and the private sector, including education conferences and coordinating with professional associations for building officials.

As part of its work to help ensure the health and safety of all New Yorkers, the DCEA provides a variety of services related to the State’s Uniform Code and the State Energy Conservation Construction Code (Energy Code).¹³ In close coordination with community officials, the Division oversees the enforcement practices of local governments in matters pertaining to building construction, fire prevention, and energy conservation. It consists of several units:

¹² http://www.dos.ny.gov/DCEA/part_1203_Locallaw.html.

¹³ <http://www.dos.ny.gov/DCEA/index.html>.

- + *Code Development Unit* serves as Secretariat to the State Fire Prevention and Building Code Council (Code Council), which is responsible for developing and maintaining the Uniform Code and the Energy Code.
- + *Code Interpretation Unit* administers the authority of the Secretary of State to issue written interpretations of the codes. Formal interpretations are available online.
- + *Educational Services Unit* has instructors who provide the basic training required for the initial certification of code enforcement officials (six 21-hour courses), develop and deliver in-service training programs for code officials to maintain their certification, and review and approve code-related courses submitted by private providers. As of mid-2013, six floodplain management courses offered by NYSDEC were approved.
- + *Regional Services Unit* administers program functions through regional offices, including processing variances and appeals; providing support, advice, and assistance with plan reviews and inspections; performing plan reviews; conducting investigations and holding hearings on complaints; and directly enforcing the code in municipalities that “opt out” of enforcing the Uniform Code when the county in which the municipality elects not to enforce the codes.
- + *Technical Services Unit* assists code enforcement officials, design professionals, and the general public. The unit assists DCEA’s regional staff with complex issues and projects, and augments local building departments in times of natural disasters. The unit provides staff opinions via telephone, electronic mail, and advisory letters, and periodically issues technical bulletins that clarify code issues or advise the public of newly developed conditions or practices that affect the code. The unit manages the Manufactured Housing Program to implement the Federal Manufactured Housing Improvement Act of 2000, including certification of manufacturers, retailers, installers, and mechanics (servicing the structural parts of the home). In cooperation with DCEA, the New York Housing Association provides training opportunities for the manufactured housing industry. Also, the unit is responsible for the approval of factory-manufactured homes and buildings (modular) and oversight of State-permitting agencies.

State Fire Prevention and Building Code Council. The State Code Council is charged with maintaining and updating the Uniform Code and the Energy Code. Since 2003, the Uniform Code has been based on the I-Codes. In 2012, the Code Council began the process of evaluating the 2009 and 2012 editions of the I-Codes to produce the next edition of the Uniform Code, expected to be effective in 2014. A number of technical subcommittees conduct the initial review of the changes in the model codes and develop recommendations for State-specific amendments. Unless recommended otherwise by the subcommittees, previously adopted amendments are carried forward.

Members of the public may submit code change proposals for consideration. Proposals must conform to the State Administrative Procedures Act, and proponents are required to explain why proposals are necessary, the benefits, alternatives considered, potential negative impacts, and cost impacts.

The Code Council is empowered to adopt higher or more restrictive standards upon recommendation of local governments. Local governments may enact local laws to adopt higher or more restrictive standards than the requirements of the Uniform Code. A petition, supported with evidence of specific need, must be submitted to the Code Council for a determination of whether the local

standards are more stringent. The Code Council has the authority to deny local adoption of higher standards.

Technical Bulletins for the 2010 Codes of New York State. The DCEA publishes technical bulletins,¹⁴ including two recent bulletins with guidance related to flood hazard areas: *Electrical Systems and Equipment in Flood-damaged Structures* and *Accessory Structures*. One archived bulletin from January 2003, *Flood Venting in Foundations and Enclosures Below Design Flood Elevation*, refers to the out-of-date edition of FEMA Technical Bulletin 1 and to American Society of Civil Engineers (ASCE) 24-98, which is not the edition referenced by the current codes.

Forms and Publications. The DCEA posts several model reporting forms and related publications on its Web page.¹⁵ The Building Permit Application requests the applicant to indicate whether the site is or is not in a floodplain and advises checking with town clerks or NYSDEC. The General Residential Code Plan Review form includes a reminder to “add 2’ freeboard.” Sample Flood Hazard Area Review Forms, including plan review checklists and inspection checklists for Zone A and Zone V, are based on the forms in *Reducing Flood Losses through the International Code Series* published by International Code Council and FEMA (2008).

G.2.3 New York State 2010 Uniform Code and Code Amendments (Flood)

The 2010 Uniform Code is based on the 2006 I-Codes, with State-specific amendments adopted to produce the 2010 codes. The I-Codes that are the basis for the Uniform Code are the IBC, IRC, International Fire Code (IFC), IEBC, International Property Maintenance Code (IPMC), IFGC, IMC, and International Plumbing Code (IPC). The DCEA promulgates State-specific amendments as regulations in the New York Codes, Rules and Regulations, Title 19, Chapter XXXIII. The codes are available online in read-only format.¹⁶ The DCEA has its own regulations for administration and enforcement, replacing those provisions of the I-Codes.

Part 1220 – Residential Code. The State expanded the scope of the residential code to also apply to dwellings converted to “bed and breakfast dwellings” and to buildings regulated by a department or agency of the State of New York as one- and two-family dwellings or townhomes. Modifications of the flood provisions (including those carried forward from the 2006 edition) include:

- + Added definitions for several terms in Chapter 2: base flood, BFE, flood or flooding, Flood Boundary and Floodway Map, flood hazard area, FIRM, floodway, and SFHA. (These terms are not defined in the model IRC because they are described where used.)
- + Added a definition for design flood elevation (DFE) that refers to the “elevation of the base flood.” The Building Code definition refers to the “elevation of the design flood”; having two definitions for the same term could be confusing. (The model I-Codes use of design flood and DFE allows communities to adopt flood hazard maps other than the FIRM.)

¹⁴ http://www.dos.ny.gov/DCEA/tech_bull10.html.

¹⁵ <http://www.dos.ny.gov/DCEA/forms.html>.

¹⁶ <http://publicecodes.cyberregs.com/st/ny/st/index.htm>.

- + Added a definition for flood hazard area subject to high-velocity wave action, although the term is not used; R324.3 describes areas that are designated as coastal high hazard areas.
- + Added a definition for freeboard: “A factor of safety expressed in feet above the design flood elevation.”
- + Retained Table R301.2(1), Flood Hazards cell, and footnote (f). (In New York State, communities adopt flood maps by separate ordinance and automatic adoption of map revisions is not permitted.)
- + Added new R324.1.3.1, Acceptance of alternative methods to establish the DFE, to specify that the code official may accept the use of data from other sources, including but not limited to, the State, U.S. Army Corps of Engineers, Natural Resources Conservation Service, or “another authoritative source, such as historical data.”
- + Added new R324.1.3.2, Lack of design flood elevation, to specify that if it is not possible to obtain DFEs from a FIRM or an alternative method, the DFE shall be 3 feet above the highest adjacent grade.
- + Added new R324.1.3.3, Freeboard, to specify that a freeboard of 2 feet shall be added where DFEs or other elevation requirements are specified, except where the default to 3 feet is permitted.
- + Added reference to freeboard in the following sections: R324.1.5, Protection of mechanical and electrical systems; R324.2.1, Elevation requirements (Zone A); and R324.3.1, Elevation requirements (Zone V) (the reference to freeboard was not added to R324.7, Flood-resistant materials).
- + Adopted Appendix J, Existing Buildings and Structures (thus enforcement by communities is required) and added:
 - + Definitions for Substantial Damage and Substantial Improvement, and new sections AJ401.3 (repairs), AJ501.3 (alterations), AJ601.5 (reconstruction), AJ803.2 (additions and foundations), and AJ1001.4 (relocated or moved buildings) to include flood provisions that are essentially equivalent to the flood provisions in the Existing Building Code, requiring compliance with R324 if the work is Substantial Improvement or repair of Substantial Damage.
 - + Section J901.3 replaces the three exceptions in the model I-Code with a single exception that requires historic buildings in flood hazard areas to comply with Section R324, unless the buildings continue to be designated as historic buildings. (Thus, the definition for “historic building” does not require local programs to be approved by either the State or the Secretary of the Interior.) Also see Section G.2.4.

Part 1221 – Building Code. The State specifically states that the building code does not apply to certain buildings, including agricultural buildings (an explicitly defined term), construction trailers used as temporary offices, and “structures such as radio and television transmission, communications and wind generation towers not attached to buildings.” The IBC Appendix G, Flood-Resistant

Construction, is not adopted. Modifications of the flood provisions, including a clarification issued on September 23, 2012, include:

- + Section 1612.3 is modified to generically refer to locally adopted maps and studies which, at a minimum, are the FIS and FIRMs. (The IBC anticipates insertion of the jurisdiction’s name and date of the FIS.)
- + Sections 1612.5(1.1) and (2.1) are deleted because the section referred to is in Chapter 1, which New York State did not retain. (In the IBC, these provisions require submission of documentation of the elevation of the lowest floor or the bottom of the lowest horizontal structural member of the lowest floor, “as required by the lowest floor elevation inspection in Section 109.3.”)

Part 1227 – Existing Building Code. The State modified the scope of the IEBC to exclude dwellings within the scope of the residential code (which treats existing dwellings in Appendix J) and to exclude agricultural buildings. Modifications of the flood provisions (including those carried forward from the 2006 edition) include:

- + Section 1101.4, replacing the three exceptions in the IEBC with a single exception that requires historic buildings in flood hazard areas to comply with Section 1612, unless the buildings continue to be historic buildings. (Thus, the definition for “historic building” does not require local programs to be approved by either the State or the Secretary of the Interior.) Also see Section G.2.4.

G.2.4 Historic Structures in New York State

New York State maintains its own register of historic places, in addition to the National Register of Historic Places. The New York State Historic Preservation Act requires New York State agencies to take into account potential project impacts on historic resources in much the same way the Federal Government is required to assess impacts on historic properties.

The model local law for flood damage prevention ordinance developed by the NYSDEC, briefly described in Section G.2.1, includes the NFIP definition for “historic structure.” It also includes the NFIP definition for “Substantial Improvement”; thus, alterations of historic structures that would otherwise be determined to be Substantial Improvements of such structures are not included in the definition. In addition, the variance section of the model local law contains the NFIP provision for granting variances for repair or rehabilitation of historic structures, provided the proposed work will not preclude the structure’s continued designation and the variance is the minimum necessary to preserve the historic character and design of the structure.

In the State’s existing building code, and Appendix J of the residential code, the I-Code provisions for historic buildings in flood hazard areas were modified to replace exceptions for historic buildings that meet the NFIP definition with the following: “Exception: If a historic building will continue to be a historic building after the proposed work is completed, then the proposed work is not considered a substantial improvement.” The definition for “historic building” includes buildings designated by local programs without limiting local designation to local programs that are certified by a Department of the Interior (DOI)-approved State program or directly by the DOI.

G.3 New York City

Section 2.3 of the MAT report briefly describes the New York City (NYC) Department of Buildings (DOB), which administers the New York City Construction Code. This section of Appendix G provides details on DOB programs and the flood provisions of the code.

G.3.1 Flood Provisions of the NYC Construction Code

The first FIRMs for New York City were published in 1982, and the City adopted floodplain management regulations in November 1983 in order to participate in the NFIP. The current FIS and FIRMs were published in 2007 and are under revision. See Section 1.4.2 of the MAT report for a brief description of ABFEs.

As part of the City's initial adoption of the 2003 IBC, a decision was made to amend the code by moving the flood provisions of Section 1612 to Appendix G, Flood-Resistant Construction. All other flood provisions of the building code, plumbing code, mechanical code, and fuel gas code also were modified to refer to Appendix G. At the same time, the DOB made extensive revisions to IBC Appendix G, along with amendments to ASCE 24, a referenced standard.

2008 NYC Building Code, Chapter 1 Administration. In 2009, the general administrative provisions of the NYC Construction Code were amended to clarify the required contents of construction documents for applications for permits in coastal zones and water-sensitive inland zones (which include SFHAs). One provision states that documents for construction or alteration of buildings will not be approved unless the applications comply with Appendix G. In effect, this provision "recaptures" existing buildings that otherwise are permitted to have work performed in compliance with the 1968 building code (described below).

2008 Building Code, Appendix G Flood-Resistant Construction (with pending amendments). The following notes highlight the more significant revisions made by the DOB to add more specificity to the flood provisions of the I-Codes and to reflect the requirements that exceed the NFIP minimums and that are unique to the City (including some changes that are proposed in the bill Int. No. 1056 that was pending before City Council in October 2013):

- +G102.3.2. Pending amendment would require that buildings constructed with basements in filled land shall "maintain a minimum setback of 20 feet, at or above the Base Flood Elevation, from the edge of the Special Flood Hazard Area to the nearest wall of the basement."
- +G103.3. Specifies that where BFEs are not shown on FIRMs, applicants are required to request BFE data from the NYSDEC; if data are unavailable, the BFE shall be "equal to 3 feet above the highest adjacent grade."
- +G104.5.1(1). Requires design of "wet floodproofed enclosures" to be certified as designed in accordance with ASCE 24 requirements for flood openings.
- +G104.5(3). Requires certification of utility and mechanical work, stating installations will be in accordance with ASCE 24.

- +G105.2(1). Specifies a flood zone compliance inspection “prior to sign-off of work” to certify construction or alterations were performed as permitted and in accordance with the applicable provisions of Appendix G and ASCE 24. The proposed amendment would clarify that this section applies to applications for other than new buildings and substantial improvements (which are addressed in G105.3).
- +G105.3. Specifies that all applications for new buildings and substantial improvements are subject to “elevation progress” and “final elevation” inspections, and dry floodproofed buildings are subject to a “flood shield” inspection that includes witnessing activation and deactivation. Pending amendments would specify that a special inspector or special inspection agency must perform “progress and special” inspections during construction.
- +G105.4. Requires a “flood shield inspection” be conducted where shields and devices are part of dry floodproofing systems; the inspection requires a registered design professional to “witness their activation or transportation to their installed positions” and to confirm installation of signage required by ASCE 24. A pending amendment would specify the inspection is to be performed by a special inspector or special inspection agency.
- +G106. Specifies that certificates of occupancy shall note if enclosed areas are subject to flooding or, if spaces are dry floodproofed, such spaces shall be described.
- +Definitions:
 - + Pending amendment would add a definition for “Coastal A Zone” that explicitly states that areas are deemed Coastal A Zones only if identified on FIRMs.
 - + Replaces the ASCE 24 definitions for “residential” and “nonresidential” with language that allows dry floodproofing of certain buildings deemed by the NFIP to be residential in nature.
- +G304.1.2(2.3). Provides that utilities and equipment may be located within dry floodproofed enclosures.
- +G304.2. Below elevated buildings in Zone V, limits walls to breakaway walls that are “open lattice type construction.”
- +G304.3. Pending amendment would require buildings in Coastal A Zones to comply with Zone V requirements, with exceptions that permit (a) filled stemwalls and (b) dry floodproofing (non-residential only) provided it is demonstrated that “the foundation and building, including flood shields if provided, will resist the wave action, including the effects of scour and erosion.”
- +G305 and G306. Prohibits placement of manufactured homes and recreational vehicles in Zone V.
- +G309 and G310. Pending amendments would add requirements for temporary structures and temporary storage and for utility and miscellaneous Group U buildings and similar structures.
- +ASCE 24 Section 6.2.2. Modifies the dry floodproofing limitation that requires “at least one door satisfying building code requirements for an exit door or primary means of escape” to require

“means of egress” (a defined term) to either be elevated at or above the DFE or to require elevated doors that meet other specific requirements.

- + ASCE 24 Section 7.5.1. Requires elevator controls to prevent elevator cabs from descending into floodwater and requires signage explaining that elevators will be prevented from descending in the event of flooding.

Existing Buildings. In 2003, when the City moved to codes based on the I-Codes, a decision was made to allow work on existing buildings to either comply with the new codes or the technical requirements of the 1968 building code, until an existing building code is adopted (the City does not adopt IBC Chapter 34 Existing Structures, nor does it adopt the IEBC). However, as previously stated, the administrative provisions in Chapter 1 specifically require applications for existing buildings to comply with Appendix G.

The Rules of the City of New York, Section 3606-01, specify requirements for building permit applications to alter buildings in SFHAs (including repair, reconstruction rehabilitation, additions, or improvements) and specify how Substantial Improvement determinations are made. Two options are identified for determining market value, one based on the Department of Finance’s most recent “Final Assessment Roll” and one that allows applicants to submit an appraisal performed by a New York State-licensed Real Estate Appraiser. The rule also specifies that applications for alteration of existing buildings in SFHAs shall state: “Work proposed in this application (is/is not) included in a substantial improvement as defined by Section BC G201.2 and 1 RCNY 3606.01.” Where the cost of a proposed alteration exceeds \$40,000, documentation of market value and costs must be submitted to substantiate whether a building will or will not be Substantially Improved. The requirements are summarized in an informational brochure for architects and engineers performing Hurricane Sandy-related repair and reconstruction work.¹⁷ The extent to which the DOB verifies applicant statements that work is not Substantial Improvement is unknown.

Public Schools. The City has more than 1,200 public school buildings, half of which were constructed prior to 1949. The NYC School Construction Authority is solely accountable for planning, real estate, and budgeting, as well as the scoping, design, and construction of new schools, and the planning, design, and construction of additions and capital improvements to existing schools.¹⁸ The Authority is responsible for ensuring that new schools, and work on existing schools, comply with the NYC Construction Code.

The Authority issues design standards to guide the design of new construction and rehabilitation of existing buildings. The standards define the acceptable and expected design practice for consultants and in-house architects and engineers. The requirements may meet or exceed applicable code requirements. One design requirement, 1.3.1.11 Construction Requirements in Areas of Special Flood Hazard (revised May 2013), specifically requires compliance with Appendix G of the 2008 NYC Building Code and references the ABFE (and future revisions of elevations), noting that the elevation requirement for “occupancy type category III” is currently 1 foot above the BFE. The guidance, recently revised, cautions designers to consider resistance to wave action and scour in areas of moderate wave action (“Coastal Zone-A”). Also added was guidance for increasing flood resistance of existing construction, including a list of items to consider when compliance with

¹⁷ http://www.nyc.gov/html/dob/downloads/pdf/info_architects_engineers.pdf.

¹⁸ <http://www.nycsca.org/AboutUs/Pages/default.aspx>.

Appendix G is not required. Some of the narrative descriptions of requirements of Appendix G are not entirely consistent with Appendix G and the NFIP minimum requirements.

Hospitals and Healthcare Facilities. Some hospitals are subject to the New York State requirements (see Appendix F, Section F.5), and applications for building permits for those facilities are not processed by the DOB. Other healthcare facilities are subject to the NYC Construction Code.

G.3.2 NYC Department of Buildings and Hurricane Sandy

More than 80,000 buildings were inspected by the DOB in the aftermath of Hurricane Sandy, helping New Yorkers determine whether it was safe for them to return to homes and businesses. To facilitate recovery, application and permit fees were waived for those undertaking recovery and reconstruction. The waiver applied to all demolition applications and permits; permits for repairs, alterations, and renovations of damaged buildings; and applications for permits to rebuild structures that were completely destroyed.

Applications for permits to repair flood damage are expected to be received over a long time as property owners take time to evaluate options, settle insurance claims, and develop plans and specifications. Given the number of buildings affected by flooding, an anticipated increased volume of applications could complicate the DOB's ability to perform timely plan reviews. In addition, the volume of inspections associated with the increase is expected to strain the DOB's resources.

Hurricane Sandy Communications. Shortly after the event, the DOB created a Web page dedicated to rebuilding after Hurricane Sandy.¹⁹ Available documents include a guide to new and revised code and zoning standards, frequently asked questions on rebuilding to meet flood standards, explanations of the mayor's executive order on flood standards, and the emergency rule on construction in SFHAs. In addition, numerous short fact sheets have information on topics ranging from emergency repairs to finding licensed professionals. More detailed fact sheets, intended for owners and managers of large buildings and for design professionals, address topics ranging from emergency electrical restoration to clarification of the procedures and requirements for New York State-licensed architects and engineers who perform Hurricane Sandy-related repair and reconstruction work.

After Hurricane Sandy, the DOB conducted numerous training seminars on flood-related design for design professionals in all five boroughs. Also, post-Sandy consultations are available for homeowners and design professionals to have plans reviewed free of charge. The DOB holds homeowner outreach nights and industry meetings regularly in its borough offices.

Building Code Elevation Requirements. In January 2013, the Commissioner of Buildings adopted an emergency rule that modified the elevation requirements of the NYC Construction Code for certain new buildings and buildings that will be Substantially Improved. The effect was to restore the minimum elevation requirement for Category II buildings to the BFE plus 1 foot to be consistent with ASCE 24 and to adopt the New York State requirement that one- and two-family dwellings be elevated to or above the BFE plus 2 feet. Final adoption of the rule took place in June 2013.

¹⁹ http://www.nyc.gov/html/dob/html/rebuilding_after_sandy/storm_update.shtml.

Zoning Resolution Height Limitations and Elevation Requirements. Mayor Michael Bloomberg issued an executive order to suspend height limitations if homes are elevated to any level selected by the homeowner that is at least as high as the ABFE, but not higher than 2 feet above the ABFE. An elevation selected in this range is referred to as the “Zoning Design Flood Elevation.” Prior to Hurricane Sandy, buildings that pre-dated the current Zoning Resolution were deemed “lawfully non-complying,” and owners were allowed to reconstruct such buildings in compliance with the NYC Construction Code provided no new (or increased existing) zoning noncompliance was created. Property owners, by right, may use the BFEs on the current Effective FIRM if they comply with current zoning height limitations.

G.3.3 Historic Structures in New York City

The New York City Landmarks Preservation Commission maintains a listing of historic properties, structures, objects, and archaeological sites. Designated landmarks are afforded protection through the Landmarks Law, which requires owners of listed properties to obtain advance approval from the Commission for any work affecting designated property that requires issuance of a building permit. Commission approval is required for any work performed on the exterior of designated buildings, regardless of whether a building permit is required. Properties on the State register and the National Register of Historic Places are also protected by the Landmarks Law.

The 2008 Building Code, Appendix G, has specific provisions for historic structures in flood hazard areas. The definition for “historic structure” is consistent with the NFIP definition, as is the definition for “Substantial Improvement.” In the variance section, Section G107.2.1 specifically authorizes the Board of Standards and Appeals to issue a variance for the “repair or rehabilitation” of a historic structure (that would otherwise be determined to be Substantial Improvement) provided: (1) the application has been approved by the Landmark Preservation Commission and/or the New York State Historic Preservation Office; (2) the proposed work will not preclude the structure from continued historic designation; and (3) the variance is the minimum necessary to preserve the historic character and design of the structure.

