Flood Provisions in the International Code Series and 2010 Florida Building Code

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ABSTRACT

When Hurricane Andrew hit southeastern Florida in 1992, the model building codes in use at the time had some flood provisions, but none had complete, mandatory provisions that were consistent with the minimum requirements of the National Flood Insurance Program (NFIP). One of the objectives of the NFIP is to reduce damage to buildings caused by flooding. The Federal Emergency Management Agency (FEMA) has long recognized the advantages of enforcing floodplain management regulations through building codes.

In 1994, three national model building code organizations established the International Code Council to develop a single set of comprehensive model codes, known as the International Code Series (I-Codes). FEMA, the federal agency that administers the NFIP, participated in incorporating the flood provisions into the I-Codes and continues to participate in the code development process. The flood provisions in the 2009 and 2012 I-Codes are consistent with the NFIP requirements for buildings and structures.

Early editions of the Florida Building Code (FBC) that were based on the I-Codes did not contain flood provisions, but the 2010 FBC retains the flood provisions from the I-Codes and has Florida-specific amendments related to flood-resistant construction.

CodeMaster, published by the Structures & Codes Institute, is a series of guides on topics related to building codes. *CodeMaster: Flood Resistant Design* (2011) focuses on the flood provisions in the 2009 and 2012 editions of the *International Building Code* and the *International Residential Code* and the referenced standard for flood loads in ASCE 7-10, *Minimum Design Loads for Buildings and Other Structures* (ASCE, 2005b; 2010) published by the American Society of Civil Engineers (ASCE) and the referenced standard for design and construction requirements in flood hazard areas, ASCE 24 (ASCE, 2005a).

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INTRODUCTION

When Hurricane Andrew hit southeastern Florida in 1992, the model building codes in use at the time had some flood provisions, but none had complete, mandatory provisions that were consistent with the minimum requirements of the National Flood Insurance Program (NFIP) (FEMA, 1992).

Beginning in the early 1990s, the three major model building code development organizations agreed to work together to establish the International Code Council (ICC) and to develop the International Code Series (I-Codes). The Federal Emergency Management Agency (FEMA) participated from the outset to incorporate flood provisions.

The I-Codes that currently have flood provisions are the *International Building Code* (IBC), *International Residential Code* (IRC), *International Existing Building Code*, *International Mechanical Code*, *International Plumbing Code*, *International Fuel Gas Code*, *International Fire Code*, and *ICC Performance Code*. Most states and local jurisdictions that adopt and enforce codes base them on the I-Codes.

According to FEMA, the flood provisions in the 2009 and 2012 I-Codes are consistent with NFIP requirements for buildings and structures, and communities can therefore rely on the I-Codes to fulfill some of the requirements they must meet to participate in the NFIP (FEMA, 2012a). This statement has been described as providing communities a "safe harbor," allowing reliance on the codes as part of community participation in the NFIP.

The I-Codes achieve consistency with NFIP regulations in large measure through reference to ASCE 24, *Flood Resistant Design and Construction* (ASCE, 2005a). FEMA prepared excerpts of the flood provisions of the 2009 and 2012 I-Codes and a comparison of the 2009 I-Codes, ASCE 24, and NFIP requirements (FEMA, 2012a).

This paper begins with background on the NFIP, followed by a description of the flood provisions in the I-Codes, including their evolution and FEMA's involvement in incorporating them into the I-Codes, and a description of the flood provisions in the 2010 Florida Building Code (FBC). Finally, *CodeMaster: Flood Resistant Design*, a 2011 publication from the Structures & Codes Institute, is introduced.

THE NATIONAL FLOOD INSURANCE PROGRAM

The NFIP was authorized by the National Flood Insurance Act of 1968 (42 U.S.C. §§ 4001 et seq.). Congress found that "a program of flood insurance can promote the public interest by … encouraging sound land use by minimizing exposure of property to flood losses …" (42 U.S.C. § 4001(c)).

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One of the objectives of the NFIP is to encourage state and local governments to consider flood hazards in their land use and development decisions in order to reduce flood damage and losses. Many communities achieve this objective by guiding development to areas with lower risk. However, when proposals are made to develop within flood hazard areas, communities must apply regulations that at least meet the minimum criteria in 44 CFR § 60.3 which are intended to minimize exposure to flood conditions and minimize future flood-related damage.

Another objective of the NFIP is to break the cycle of flood damage. Many buildings have been flooded, repaired or rebuilt, and flooded again. In some parts of the country, this cycle occurs every couple of years. Before communities adopted floodplain management regulations, people tended to rebuild in the same flood-prone areas using the same construction techniques that had not adequately protected structures during earlier flood events. FEMA has indicated that structures built to NFIP floodplain management requirements experience, on average, around 80 percent less damage through reduced frequency of inundation and severity of losses.

Another NFIP requirement that contributes to breaking the cycle of repetitive damage applies to older buildings that were constructed before communities adopted regulations for development in flood hazards. The requirement applies to older buildings that are determined to be undergoing substantial improvement or repair of substantial damage (determined by comparing the cost of the improvements or repairs to the market value of the building). Substantially improved or repaired buildings must be upgraded or modified using techniques that will bring them into compliance with the requirements for new construction in flood hazard areas.

Communities pay a great deal of attention to buildings in mapped special flood hazard areas, but the scope of development in these areas that communities must regulate is much broader than the scope of building codes. NFIP-participating communities must regulate non-building development, including but not limited to any manmade changes such as structures other than buildings, mining, dredging, filling, grading, watercourse alterations, paving, excavation or drilling, and storage of equipment and materials. Any activities that may change watercourses are included, such as bridges and culverts, largely to ensure that such activities do not increase flood levels. In addition, NFIP-participating communities must any buildings in flood hazard areas that may be exempt from buildings codes.

FEMA'S INVOLVEMENT IN THE DEVELOPMENT OF THE FLOOD PROVISIONS IN BUILDING CODES

Even though many if not most communities have traditionally assigned the responsibility for enforcing floodplain management regulations to planning, engineering, or public works departments, there has always been a nexus between building codes and local floodplain management regulations. FEMA has long recognized the advantages of enforcing flood hazard area requirements for buildings

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through building codes. Importantly, in most of the jurisdictions that enforce codes, building permits are issued for all buildings and structures, increasing the likelihood that property owners are aware of the requirement to obtain permits. When permits are issued only for development in flood hazard areas, property owners are less likely to be familiar with both the requirements and whether any given location is or is not subject to the requirements.

Another advantage of including flood hazard area requirements in building codes is that for designers it is logical to have all hazard-related requirements for buildings and structures in one place to facilitate the proper consideration of all loads and other requirements. Of considerable importance is that work on existing buildings is more logically regulated under a building code rather than under local rules administered by a department other than a building department.

FEMA also recognizes that enforcement is strengthened by making flood provisions part of building codes. Building departments routinely perform multiple inspections during construction. By examining the aspects of construction that are required for compliance with flood provisions or by requiring evidence of compliance (e.g., certification of building elevations), communities can more effectively identify deficiencies and require corrective action in advance of completion of construction.

To take advantage of the advantages of enforcing requirements for buildings in flood hazard areas through building codes, FEMA began to contribute to the development of building codes and standards in the mid-1980s.

FEMA is a member of the American Society of Civil Engineers (ASCE) committee that has been appointed to revise ASCE 24-05, *Flood Resistant Design and Construction* (ASCE, 2005a). The *International Building Code* (IBC) references ASCE 24 for the design requirements applicable to buildings and structures in flood hazard areas. Although deemed to be consistent with NFIP regulations, ASCE 24 is not limited by, nor is it intended to mimic, the regulations. The history of ASCE 24 and a summary of its key provisions are provided in *ASCE 24: Improving Performance of Buildings in Flood Hazard Areas* (Ingargiola et al., 2012).

A summary of the flood provisions in the I-Codes and a brief history of the evolution of the provisions and FEMA's participation in the code development are provided below.

FLOOD PROVISIONS IN THE I-CODES

Building codes establish requirements for the design and construction of buildings and structures and specify environmental conditions that must be accounted for in those designs.

The flood provisions in the IBC, IRC, ASCE 24 (referenced in the I-Codes), and IEBC are briefly described below.

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International Building Code. The IBC references ASCE 7, *Minimum Design Loads for Buildings and Other Structures* (ASCE 2005b; 2010) for loads that must be accounted for in building design, including wind loads, snow loads, seismic loads, and flood loads, which include hydrostatic loads, hydrodynamic loads, wave loads, and debris impact loads. It references ASCE 24 for specific requirements applicable in flood hazard areas. ASCE 24, first published in 1998, was developed by ASCE under a mid-1990s agreement with FEMA. FEMA contributed to another initiative in the mid-1990s to develop the flood load requirements that first appeared in the 1998 edition of ASCE 7. See Ingargiola et al. (2012) for a history of ASCE 24 and for highlights of its key provisions.

The IBC includes flood provisions in several chapters, but most are in Section 1612, Flood Loads, in Chapter 16, Structural Design, which references ASCE 24 for specific design and other requirements applicable in flood hazard areas:

- Section 1612.1 – General requirement that buildings, including buildings that are undergoing substantial improvement or repair of substantial damage, be designed and constructed to resist the effects of flood hazards and flood loads.
- Section 1612.2 – Definitions of terms used in the flood provisions of the code.
- Section 1612.3 – Flood hazard areas established by the adoption of flood hazard maps, which are, at a minimum, maps prepared by FEMA; requirements that apply if design/base flood elevations are not included in the adopted map; and requirements for determining impacts in riverine flood hazard areas if design/base flood elevation are specified but floodways are not delineated.
- Section 1612.4 – Requirement to design and construct buildings and structures in flood hazard areas in accordance with ASCE 7 (loads) and ASCE 24 (all other requirements). Technical flood requirements are part of the IBC by reference to ASCE 24.
- Section 1612.5 – Documentation that must be prepared and sealed by registered design professionals.

IBC Chapter 34 includes requirements that apply to work on existing buildings. The NFIP requires local jurisdictions to evaluate work proposed for existing buildings, especially buildings that predate a community's participation in the NFIP. If the work on an existing building is determined to constitute substantial improvement or repair of substantial damage, the building is required to be brought into compliance with the requirements for new buildings in flood hazard areas. Chapter 34 in the IBC includes provisions applicable to existing buildings in flood hazard areas. Separate sections contain flood requirements for additions, alterations, repairs, change of occupancy, and improvement of historic structures. Appendix J of the IRC

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addresses existing dwellings and includes provisions applicable to dwellings in areas prone to flooding.

ASCE 24, *Flood Resistant Design and Construction*. ASCE 24 addresses topics pertinent to designing buildings in all flood hazard areas, including floodways, coastal high hazard areas, and other high-risk flood hazard areas such as alluvial fans, flash flood areas, mudslide areas, erosion-prone areas, and high velocity areas. It 24 covers the following topics: (1) scope, definitions, structure classification, basic requirements applicable in all flood hazard areas), (2) requirements for Zone A areas not identified as high risk areas, (3) requirements for high risk areas, (4) requirements for Zone V and Coastal A Zones, (5) materials, (6) dry and wet floodproofing, (7) utilities, (8) building access, and (9) miscellaneous construction.

In some respects, ASCE 24 and the I-Codes that reference ASCE 24 exceed or are more specific than the NFIP minimum requirements (see FEMA, 2012a). ASCE 24-05 requirements are summarized in "Highlights of ASCE 24, Flood Resistant Design and Construction" (FEMA, n.d.). Also see Ingargiola et al. (2012) for a history of ASCE 24 and highlights of its key provisions.

International Residential Code. The IRC, applicable to one- and two-family dwellings and most townhomes, includes flood provisions throughout the code, but most are in Section R322, which is specific to flood hazards (R322 in 2009 IRC and 2012 IRC, R324 in 2006 IRC, R323 in 2003 IRC, and R327 in 2000 IRC). General requirements applicable to all flood hazard areas are in R322.1. Requirements for flood hazard areas other than coastal high hazard areas are in R322.2 and R322.3 includes requirements for coastal high hazard areas.

ASCE 24 and the International Residential Code. The IRC requires that homes that are proposed to be located in floodways (where floodwaters tend to be deeper and flow faster) be designed in accordance with ASCE 24. This requirement is in recognition of the likelihood that the flood loads associated with flood depth and velocity should be accounted for in the foundation design instead of relying on the prescriptive requirements of the IRC.

Effective with the 2009 IRC, ASCE 24 is specified as an alternative to the requirements in coastal high hazard areas (Zone V).

International Existing Building Code. The ICC also publishes the IEBC, which addresses repairs, alterations, additions, changes in occupancy, and relocated or moved buildings. For work covered by the IEBC, if the work constitutes substantial improvement (including repair of substantial damage), the proposed work and the existing building are to be brought into compliance with the flood-resistant design requirements for new construction. Certain historic buildings in flood hazard areas are not required to be brought into compliance if they retain their historic designation.

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EVOLUTION OF THE FLOOD PROVISIONS IN THE I-CODES

The evolution of the flood provisions in the I-Codes from 1989 to 2012 and the anticipated changes by 2015 are described below.

1989. FEMA contributed to the 1989 edition of SSTD 4-89, *SBCCI [Southern Building Code Congress International] Standard for Flood Plain Management* (SBCCI, 1989).

1992. With assistance from the National Institute of Building Sciences, FEMA published a comparison of 23 model building codes and standards to the NFIP requirements and recommended changes to the codes and standards in FEMA 296, *Code Compatibility Report* (FEMA, 1992). Although the dominant model building codes had flood provisions, none had complete provisions that were consistent with the NFIP regulations for building and structures in flood hazard areas. FEMA 296 "represents a starting point for a consensus standard for flood-resistant construction which can be referenced in the model building codes" (FEMA 1992).

1994. The International Code Council was founded by the three major code organizations that agreed to develop a single set of nationally applicable building codes. The founders were the Building Officials and Code Administrators, which maintained the BOCA National Codes; the International Conference of Building Officials, which maintained the Uniform Building Code; and the Southern Building Code Congress International, which maintained the Standard Building Code.

2000. The ICC published the first I-Codes. FEMA contributed to the flood provisions.

2003 and 2006. The ICC published new editions of the I-Codes. FEMA contributed to the flood provisions.

2009. The ICC published a new edition of the I-Codes. A summary of the changes to the flood provisions in the 2009 I-Codes compared to the 2006 I-Codes is available in FEMA (2012a), and a comparison of select NFIP and building code requirements is available in an 8-page illustrated quick guide (FEMA, 2012b). The key changes are:

- Clarification of IBC notations for flood load and references to ASCE 7
- Additional requirement in the IBC for permit applicants to provide floodway analyses to evaluate the cumulative effect of development in flood hazard areas with base flood elevations but without delineated floodways
- Additional requirement in IBC and IRC that the finished ground level in crawlspaces/underfloor spaces be at or above grade on at least one side
- Closer alignment of terms in the IRC and IBC

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- Specification of an additional foot of building elevation for dwellings in areas designated as Coastal A Zone by delineation of the inland extent of the 1.5-foot wave height
- Specification in the IRC that all requirements that impose elevations be governed by the elevations specified for the lowest floors of buildings (Zone A) or the lowest horizontal structural member of lowest floors of buildings (Zone V)
- Modification to the IRC to permit minor grading and placement of minor quantities of fill for landscaping and drainage purposes and for support of parking slabs, pool decks, patios, and walkways

2012. The ICC published a new edition of the I-Codes. A summary of the changes to the flood provisions in the 2012 I-Codes compared to the 2009 I-Codes is available in FEMA (2012). The key changes are:

- Limitation of the authority of building officials to grant modifications to any provision required in flood hazard areas unless a specific determination is made (equivalent to the NFIP variance)
- Additional requirement that elevation documentation be submitted prior to the final inspection
- Additional requirements that interior finishes and exterior walls be provided below the elevations required by the flood provisions (i.e., elevation of the lowest floor)
- Modification of the IRC alternative that permits use of ASCE 24 in Zone V to also permit its use in Coastal A Zone
- Clarification that spread footing, mat, raft or other foundations that support columns for dwellings in Zone V, if permitted, must be designed in accordance with ASCE 24
- Additional requirement that spaces below elevated dwellings be free of obstructions
- Specification that isolated masonry piers used for dwellings in flood hazard areas be designed in accordance with the flood-resistant construction requirements
- Modification of the elevation requirements for mechanical, plumbing, and fuel gas systems and equipment to match the elevation requirements specified in the IBC

2015. In late 2011, the ICC initiated the code change cycle to produce the 2015 I-Codes and divided the codes into two groups for administrative purposes. The first group consists of the IBC (including the flood provisions of the IEBC) and the mechanical, fuel gas, plumbing, and private sewage disposal codes. The second group

consists of the remainder of the I-Codes, including the IRC. The changes that FEMA has proposed for the first group are:

- In anticipation of changes in the next edition of ASCE 24 (anticipated in late 2012), specification in the IBC that the risk category for determining design and load requirements for buildings in flood hazard areas is assigned according to ASCE 24.
- In the IBC, addition of definitions for "Coastal A Zone" and "Limit of Moderate Wave Action" and throughout the code, treatment of Coastal A Zones as flood hazard areas subject to high velocity wave action (Zone V).
- In the IBC, replacement of the term "flood hazard area subject to high velocity wave action" with the more common term "coastal high hazard area," which is used in the IRC.
- In Appendix G of the IBC, several changes for consistency with the anticipated changes in ASCE 24 (Appendix G includes NFIP-consistent administrative provisions and requirements for development other than buildings and development).
- In the IEBC, clarification that new foundations and replacement foundations must comply with the flood requirements in the IBC.
- In the IEBC, specification that relocated or moved buildings must comply with the flood requirements of the IBC or the IRC, as applicable.

FEMA'S ROLE IN DISASTER RESILIENCE AND BUILDING CODES

Requirements for buildings that are intentionally designed and constructed to resist the effects of hazards are widely recognized as the cornerstone of effective mitigation. Hazard-resistant buildings increase community resilience to disasters by decreasing the potential for future damage, reducing the cost of recovery, and facilitating earlier reoccupancy.

FEMA's continuing work on building codes to increase hazard resistance in buildings is recognized as a significant element of fulfilling the agency's mission statement: "FEMA's mission is to support our citizens and first responders to ensure that as a nation we work together to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards."

FEMA's strategic plan for 2011–2014 (FEMA, 2011) includes the following key outcome for the agency:

> Facilitate the adoption and enforcement, where feasible and appropriate, of building codes and other protection and mitigation activities at the State level that enhance resilience to the risks identified in the Regional Threat and Hazard Identification and Risk Assessments, address energy sustainability,

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and ensure universal design of buildings, transportation vehicles, etc., to meet the access and functional needs of all individuals.

FEMA's participation in the code change process is a significant step toward achievement of this outcome. It is a long-term commitment in which the agency submits code change proposals to continually improve the I-Codes and monitors and defends against proposals that may weaken flood provisions.

Many local jurisdictions know FEMA not only for its role in the NFIP but also for its roles in disaster preparedness, response, and recovery in the post-disaster period. When natural hazard events and other events cause damage that exceeds State and local capacities to recover, States typically submit requests to the President to declare emergencies and major disasters.

Section 323 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, as amended (42 U.S.C. § 5165a) contains one of the many rules that govern recovery assistance for States, local jurisdictions, and certain nonprofit organizations after a disaster declaration. The section requires that construction and repairs financed with Federal disaster assistance be in accordance with applicable standards of safety, decency, and sanitation and in conformity with applicable codes, specifications, and standards. Evidence of that compliance is required. For buildings and structures, compliance with the statute is achieved when repairs and reconstruction are compliant with the provisions of building codes that address design and construction requirements intended to improve resistance to hazards.

FEMA also contributes to the building science community's understanding of the effects of hazards and how codes and standards can be improved to reduce future damage. Through the Mitigation Assessment Team (formerly Building Performance Assessment Team) initiative, forensic engineering analyses are conducted after significant events to determine the causes of structural failures and successes. Reports of the results include recommendations that communities, States, and organizations/agencies can undertake to reduce future damage and to protect lives and property in hazard areas.

Changes in codes and standards resulting from post-disaster investigations include the following:

- Hurricane Andrew investigations in 1992 (FEMA, 1993) led to improvements in the wind standards in the FBC and ASCE 7.
- The Midwest tornado disaster investigation in 1999 (FEMA, 1999) led to ICC 500, *2008 Standard for the Design and Construction of Shelter Standards* (ICC, 2008).
- Hurricanes Charley and Ivan in 2004 (FEMA, 2005a; 2005b) prompted FEMA to examine requirements for asphalt shingles, tile roofing, and

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edge flashing, which led to expedited changes in the FBC and elimination of the statutory exemption from wind-borne debris requirements that had been in effect in the Florida Panhandle.

- Hurricanes Opal (1995), Ivan (2004), and Katrina (2005) (FEMA, 1996; 2005b; 2006) reinforced the finding that waves less than 3 feet in height contribute to significant damage of foundations other than pilings and columns, supporting the growing recognition of the value of delineating areas subject to waves between 3 feet and 1.5 feet during the base flood. These areas are referred to as Coastal A Zones.
- Numerous post-disaster investigations by FEMA reinforce the benefits of elevating buildings above the NFIP minimum to reduce vulnerability to damage. The results of the investigations, supported by laboratory study and field observations summarized in Ingargiola et al. (2001) and combined with an economic analysis of the benefits of additional elevation (AIR, 2006), supported FEMA's proposal for the 2009 IRC to include 1 additional foot of elevation in areas that are delineated as subject to waves between 3 feet and 1.5 feet (R322.2).

FLOOD PROVISIONS IN THE 2010 FLORIDA BUILDING CODE

Even after Florida shifted to using the I-Codes as the foundation for the 2001 Florida Building Code (FBC), early editions of its code did not contain flood provisions. Instead, the 2001, 2004, and 2007 editions of the FBC referred users to local floodplain management regulations. That changed in 2009 when, with support from FEMA, the Florida Division of Emergency Management asked the Florida Building Commission to consider retaining the flood provisions from the I-Codes.

The commission appointed the Flood Resistant Standards Workgroup to develop recommendations. A representative from FEMA Regional Office IV was a member of the workgroup. The result was that the flood provisions were retained in the 2010 FBC and Florida-specific amendments to the flood provisions were accepted. The initiative was encouraged by FEMA Headquarters and partially funded by a hazard mitigation planning grant.

The Florida-specific amendments related to flood-resistant construction that were accepted into the 2010 edition are:

- Specification that relocated buildings must comply with the flood hazard area requirements of new locations, if applicable
- Modification to State agency requirements for hospitals and nursing homes to require elevation based on the design flood elevation or the Category 2 hurricane surge inundation zone and to require that additions for patient occupancy and patient support be elevated

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- Modification to State agency requirements for educational facilities to require compliance with ASCE 24 and to require public educational relocatable units to be elevated to base flood elevation plus 1 foot
- Modification to State agency requirements for public swimming pools to require compliance with the flood provisions (and by reference, ASCE 24)
- Addition of requirements in the residential code for private swimming pools in flood hazard areas
- Definition of "local floodplain management ordinance" and specification that each jurisdiction must adopt the applicable flood hazard maps and studies in such ordinances
- Inclusion of a table that cross references all flood-resistant provisions of the FBC
- Tailoring of the provisions applicable to historic structures to refer to the Florida State Historic Preservation Officer (properly designated historic structures are not subject to substantial improvement requirements if they retain that designation)
- Specification that manufactured homes in flood hazard areas must be installed according to the requirements of the State agency with jurisdiction and the applicable provisions of local floodplain management regulations

Building A Safer Florida, Inc. (BASF) represents Florida's major design and construction organizations and serves as a clearinghouse for information that helps building professionals comply with the FBC. BASF also partners with government agencies, Florida universities, and other groups to provide education and resources for licensed building professionals. In 2012, BASF published *Flood Resistant Construction and the 2010 Florida Building Code* (BASF, 2012) to facilitate awareness of the flood provisions.

***CODEMASTER*: FLOOD RESISTANT DESIGN**

CodeMaster: Flood Resistant Design (Structures & Codes Institute, 2011) is one in a series of guides on topics related to building codes. This *CodeMaster* focuses on identifying and implementing the flood provisions in the 2009 and 2012 editions of the IBC and the IRC, including the flood requirements of ASCE 7-05, ASCE 7-10, and ASCE 24-05. The flood *CodeMaster* explains key flood terms, outlines a 12-step process for achieving flood-resistant building design, describes the calculation of various flood loads, and has a worked example. It is available for purchase at www.iccsafe.org/store and http://skghoshassociates.com/order-products.

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CONCLUSIONS

FEMA continues to participate in the development of the flood provisions of the I-Codes. This paper traces the evolution of the provisions. Post-disaster investigations in Florida and elsewhere have influenced the evolution.

For the first time, the 2010 FBC retains the flood provisions from the foundation I-Codes and has Florida-specific amendments.

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