

Rating the States:

An Assessment of Residential Building Code and Enforcement Systems for Life Safety and Property Protection in Hurricane-Prone Regions

The Insurance Institute for Business & Home Safety (IBHS) conducted an analysis, evaluation, and comparison of regulations and processes governing residential building construction in the 18 states most vulnerable to catastrophic hurricanes along the Atlantic Coast and Gulf of Mexico. This analysis is the basis of a first of its kind, state-by-state rating of building code and enforcement systems that govern the design and construction of residential buildings. Unfortunately, because of differences in building code adoption and enforcement across all states, or even across all jurisdictions within many states, building codes do not provide a uniform level of protection. The lack of uniformity results in real consequences for the people who live or own residential property in harm's way.

This report, "Rating the States: An Assessment of Residential Building Code and Enforcement Systems for Life Safety and Property Protection in Hurricane-Prone Regions," combines IBHS' engineering expertise and regulatory research to create a model for assessing the quality of residential building code and enforcement systems in hurricane-prone states. The ratings shine a much-needed spotlight on how states can take specific steps to improve their building code processes in order to better protect their citizens – and how citizens can understand the need for and, hopefully, demand stronger building codes. By examining the detailed rating elements, policymakers and other interested parties can find a clear roadmap to strengthening their residential building code system and improve their standing in this report.

December 31, 2011



Value of Codes

The purpose of residential building codes is to assure that minimum acceptable standards are used in the design, construction and maintenance of the places where people live. Building codes are intended to increase the safety and integrity of structures, thereby reducing deaths, injuries and property damage from a wide range of hazards. The adoption and enforcement of building codes are especially important for residential buildings because registered design professionals (e.g., engineers and architects) are less likely to be involved in home design than commercial construction.

Damage reduction that results from the adoption and enforcement of residential building codes helps to keep people in their homes following a natural or man-made disaster, reduces the need for public and private disaster aid, and preserves natural resources and the built environment. Furthermore, reducing damage to residences means that the work force required to operate businesses can remain in the area, and their presence helps to maintain local demand for a wide range of products and services.

Residential building codes promote a level, predictable playing field for designers, builders and suppliers. Codes also offer a degree of comfort for buyers who care about the safety and soundness of their homes but lack the technical expertise to evaluate building plans or construction techniques.

Building codes also allow for economies of scale in the production of building materials and construction, as well as a level of safety for first responders during and after fires and other disaster events.

Results in Brief

Although no state in this report achieved a perfect rating based on IBHS' 100-point scale, three states achieved point totals higher than 90 points: Florida (95 points), Virginia (95 points), and New Jersey (93 points). This was due to a combination of strong statewide residential building codes and comprehensive regulatory processes for the building code officials, contractors, and subcontractors who translate building code requirements into actual homes.

States achieving 75 or more points include Massachusetts (87 points), South Carolina (84 points), Connecticut (81 points), North Carolina (81 points), and Rhode Island (78 points). The next group of states, with 50 or more points, includes Louisiana (73 points), Maryland (73 points), Georgia (66 points), Maine (64 points), and New York (60 points). They are followed by New Hampshire (49 points). States with the lowest building code protections in place include Alabama (18 points), Texas (18 points), Delaware (17 points), and Mississippi (4 points). None of the states in this bottom group have a mandatory statewide residential building code. The bottom group states also lack many of the life safety protections associated with

professional implementation of residential building code requirements and professionalism within the residential building community.

Overview of the Building Code Process

Since 2000, the International Code Council (ICC) has developed a widely adopted set of building codes that help to unify the U.S. building regulatory system. These standards, known as "model" building codes, are updated every three years to reflect the latest scientific and engineering principles. In order to have the force of law, ICC model codes must be adopted, updated and enforced in each jurisdiction. The most effective and efficient way for this to occur is for states to apply the latest model code on a universal basis, and not to allow for local "opt outs," especially in high-risk areas. That is why statewide adoption of modern residential building codes figures prominently into the ratings in this report. The focus of this report is the design and construction of residences governed by the International Residential Code (IRC), even though it should be noted that the ICC has developed a number of different codes for residential and commercial buildings (e.g., International Building Code, International Energy Conservation Code, etc).

In addition to the adoption of universally applied building code standards, there are several other critical aspects of an effective state build-

ing code system, including various components of state enforcement and licensing that were considered in the IBHS analysis. These include proper enforcement by building officials and professional licensing of contractors and subcontractors, as codes protect occupants only if they are incorporated into actual buildings. While much of the day-to-day work of enforcing and applying building codes occurs at the local level, states play a prominent role in delineating substantive and procedural requirements.

Vulnerable U.S. Coastlines

IBHS chose hurricane-prone states for this initial Rating the States report because these powerful storms have accounted for eight of the 10 most expensive disasters in U.S. history, while six of the eight record-setting storms have occurred since 2000. The damage trend from land-falling hurricanes has been steadily upward, although the frequency and magnitude of these hurricanes in the U.S. varies annually.¹

One reason for this upward damage trend has been the disproportionate number of people who now live in hurricane-prone areas compared to the U.S. as a whole. For example, coastal counties in the Gulf and Atlantic areas

make up only three percent of the total U.S. landmass yet account for 15 percent of the U.S. population.²

Similarly, the value of coastal properties is disproportionate to the size of the landmass upon which they are built. According to a study by risk modeling firm AIR Worldwide, the insured value of coastal properties grew at a compound annual rate of 7 percent from 2004 to 2007. This growth put the insured value of coastal properties in 2007 at \$8.9 trillion, or 17 percent of the insured value of all insured properties in all states.³

The damage trends in these coastal counties are likely to continue. Despite the recent financial downturn, older beach cottages along the Gulf and Atlantic coasts consistently are being replaced with high-value “McMansions.” Similarly, architectural styles increasingly are incorporating design elements and building materials that are not well suited to hurricane-force winds. Building codes are especially important in providing protection for newer residents who may be unfamiliar with local weather conditions and, therefore, lack an appreciation for ensuring that a builder takes hurricane loss prevention into account.

Additionally, it is now apparent that hurricane-force winds can occur hundreds of miles inland and cause significant damage to non-coastal areas. Hurricanes Isabel (2003), Ike (2008), and Irene (2011) are among the most recent examples of tropical systems producing high winds and/or heavy rains across a broad swath of the U.S.⁴ There are a myriad of other historical examples of significant inland damage well away from the coast, including the infamous Galveston Hurricane of 1900, the Great New England Hurricane of 1938, and Hurricane Hazel in 1954. Clearly, the need for strong building codes that recognize the possibility of hurricane-force winds is not confined to immediate coastal counties, but rather exists on a statewide basis and in coastal as well as non-coastal states. This is one reason why IBHS places so much emphasis on statewide (not just coastal county) building codes in this report. IBHS also recognizes the need to have appropriate statewide code wind protection requirements, which are calibrated to reflect the most likely wind speeds in a particular zone within a state as determined by the American Society of Civil Engineers’ (ASCE) “Minimum Design Loads for Buildings and Other Structures.” The ICC model code does this and avoids imposing costly requirements that are disproportionate to needed wind protection.

¹ According to the Insurance Information Institute, in an average hurricane season there are 11 named tropical storms and six hurricanes, including two major hurricanes.

² The percentage of the population and land areas falling within Gulf and Atlantic coastal counties are based on the coastal counties outlined by AIR Worldwide in, “The Coastline at Risk: 2008 Update to the Estimated Insured Value of U.S. Coastal Properties”; and population and land area figures from the U.S. Census Bureau.

³ Figures are from, “The Coastline at Risk: 2008 Update to the Estimated Insured Value of U.S. Coastal Properties,” AIR Worldwide.

⁴ According to damage estimates by AIR Worldwide, more than \$2.5 billion of the storm’s \$12.5 billion in insured losses occurred in seven inland states. Source: AIRCURRENTS, Inland Hurricane Risk, May 2011.

Methodology and Numeric Scores

IBHS assessed 47 data points in order to rate the states from a residential building code perspective. These variables measure such important factors as a state's residential building code, universality of application without weakening amendments, local level enforcement, and licensing and education of code officials, contractors, and subcontractors who translate building code provisions into reality. A complete description of the factors included in the model is provided in Appendix B.

Data collection for some of these variables was facilitated by a partnership between IBHS and ISO, which uses the Building Code Effectiveness Grading Schedule (BCEGS®) to assess codes and enforcement in individual communities as a tool for improving building codes, building departments and code enforcement – and ultimately reducing property losses from catastrophes. This report, unlike BCEGS®, looks at state performance as a whole and provides comparative analyses. Additionally, unlike BCEGS®, IBHS' Rating the States report is not intended for use in insurance underwriting, rating, or regulatory purposes. Rather, it is intended to help provide a roadmap that states can fol-

low to improve their system of residential related building regulations by following best practices.

After identifying variables and assuring data availability, IBHS constructed a model that weights the variables as follows:

- 50 percent for variables that relate to adoption and enforcement of building codes;
- 25 percent for variables that measure code official certification and training; and
- 25 percent for variables that relate to on-site implementation, as measured by contractor and subcontractor licensing.

While this weighting system is relatively simple, it recognizes that building codes are the starting point for an effective state life safety and property protection system. Within each of the three main model components, there are several subcategories: whether statewide building codes can be amended at the local level, certification requirements for code officials, and specific construction trades covered by licensing requirements. Points were assigned to these subcategories based on relative importance to building safety and integrity, with an emphasis on wind protection. Finally, while many of the factors in the model can be measured through simple yes/no or numeric answers, there are special situations in some states that influence the effectiveness of building codes and, therefore, the points

awarded. NOTE: Report appendices A and B describe the states and the model in more detail.

States received points based IBHS research relating to a set of questions that seek to gauge the statutory and regulatory environment in the three categories and associated subcategories listed above. Points were allotted when the answer to a given question is consistent with promotion of safer residential construction. No points were allotted if the answer to a given question is inconsistent with the promotion of safer construction. No negative points were allotted.

As a result, possible scores range from 0-100, with zero being the weakest rating and 100 the strongest rating. As noted above, actual scores ranged from 4-95. The complete list of states ranked from highest to lowest follows. By examining the detailed rating elements, policymakers and other interested parties can find a clear roadmap to strengthening their residential building code system and improving their standing in this report.

Conclusion

This report assesses the performance of coastal states with a hurricane exposure in developing and promulgating a residential building code system, which uses modern building codes, coupled with strong enforcement related activities to enhance the protection of homes and families. It identifies a number of important protective features of these

systems and gathers the data necessary to assess how individual states are addressing them. The report also shows that, while no state is perfect, states can and should achieve high point totals. This achievement indicates a commitment to life safety protection through the adoption of strong statewide building codes, professional requirements for code officials, and contractor and subcontractor

licensing. Unfortunately, the IBHS analysis also makes clear that a number of states fall well short of providing their citizens with the basic protections that have long been associated with a robust building code regulatory system.

Through its research and communications activities, IBHS hopes to work with all states to improve building code regulatory systems.

IBHS also encourages homeowners to seek even higher levels of property protection through voluntary superior construction programs, such as IBHS' FORTIFIED for Safer Living® and FORTIFIED for Existing Homes™. The ultimate goal is to effectively strengthen homes, businesses, and communities against hurricanes, as well as the many other hazards that threaten our nation.

IBHS Ratings by State: Highest to Lowest

Scale 0-100*

State	Total	Adoption of code, universality, and weakening provisions	Enforcement Officials	Contractor Licensing
Florida	95	48	22	25
Virginia	95	48	24	23
New Jersey	93	49	23	21
Massachusetts	87	46	21	20
South Carolina	84	45	18	21
Connecticut	81	40	24	17
North Carolina	81	40	22	19
Rhode Island	78	44	19	15
Louisiana	73	48	15	10
Maryland	73	43	15	15
Georgia	66	31	15	20
Maine	64	33	22	9
New York	60	37	23	0
New Hampshire	49	39	0	10
Alabama	18	0	0	18
Texas	18	18	0	0
Delaware	17	4	0	13
Mississippi	4	0	0	4

IBHS rankings were weighted based on the following variables:

- 50 percent for variables that relate to adoption and enforcement of building codes;
- 25 percent for variables that measure code official certification and training; and
- 25 percent for variables that relate to on-site implementation, as measured by contractor and subcontractor licensing.

*See Appendix B for a complete list of questions used to assign points in state ratings.

Appendix A

Descriptions of State-By-State Building Code Requirements by Points

Florida

Florida (95 points) has a well-developed system for regulation of all aspects of code adoption and enforcement, code enforcement training and certification, and licensing requirements for contractors and sub-contractors. Florida has adopted the 2006 International Residential Code. The state is consistent with the wind provisions in the model code, but the Legislature approved legislation that will prohibit the requirement for residential fire sprinklers in one- and two-family dwellings and townhomes, as required by the 2009 International Residential Code.

Florida has a mandated program for code official certification and training. The program requires individuals to take code specific courses prior to taking a certification/licensing exam. Continuing education is required, including courses dealing with the residential code. The state does not separately certify inspectors for residential construction inspection. Rather, a single certificate is issued for building code inspectors, which can include multiple codes.

Florida requires licensing of general, plumbing, mechanical, electrical, and roofing contractors. Additionally, the license requires passing a licensing examination and obtaining continuing education. Mechanisms are in place enabling the state to discipline a contractor for a variety of violations, including noncompliance with the code.

Code adoption and enforcement	48
Code official certification and training	22
Contractor licensing	25
Total	95

Virginia

Virginia (95 points) has a statewide mandatory code and enforcement. The state has adopted the 2009 edition of the International Residential Code, but with the sprinkler provisions deleted. Virginia requires mandatory code adoption and mandatory code enforcement statewide. The state does not allow local amendments to the code. Less positively, the state has amended the code to require “engineered” plans in the 110 mph wind region instead of the 100 mph wind region.

Virginia requires code official certification and training, but it is not a prerequisite to employment. Virginia, as well as many other states, allows a code enforcement official to receive “on the job training” prior to sitting for examination for certification. Usually, the inspector is required to receive intense supervision while on the job, and has a limited amount of time to complete course work and the examination. If the required course work and examination are not completed within the stated time period, the temporary certification is lost as is employment.

Virginia licenses general, plumbing, mechanical, electrical, and roofing contractors. However, general contractors and roofing contractors are not required to complete continuing education.

Code adoption and enforcement	48
Code official certification and training	24
Contractor licensing	23
Total	95

Appendix A

Descriptions of State-By-State Building Code Requirements by Points

New Jersey

New Jersey (93 points) has adopted the 2009 International Residential Code and has a good system in place for code adoption and enforcement. The main deficiency is that the state does not require sprinklers in homes and townhomes by executive order.

New Jersey has a state program for code official certification and training. However, this program is less than optimal because the minimal continuing education requirement is only 15 hours every three years.

With respect to contractor licensing, home builders are only required to register with the New Jersey Department of Community Affairs. Builders are not required to take an exam to obtain a license, nor do they have a continuing education requirement. Roofing contractors also are required to register with the state, but are not required to take an exam or to complete any continuing education. By contrast, the state has a good system in place for licensing and continuing education of electrical, mechanical, and plumbing contractors.

Code adoption and enforcement	49
Code official certification and training	23
Contractor licensing	21
Total	93

Massachusetts

Massachusetts (87 points) has adopted the 2009 International Residential Code with Massachusetts amendments; a study commission is looking at the fire sprinkler issue. The state requires mandatory enforcement and does not allow local amendments to the residential code. In addition, the state adopts a plumbing and electrical code.

However, some of the Massachusetts amendments have weakened important wind provisions of the International Residential Code.

In the area of code official certification, the state has a program that includes taking code classes prior to examination and certification, requires continuing education and allows consumers to file complaints against inspectors. Massachusetts does not require certification prior to employment and does not certify inspectors solely for one- and two-family dwelling inspections.

Massachusetts requires licensing of general, plumbing, electrical and roofing contractors, requires licensing candidates to pass an exam prior to licensing, and requires continuing education. However, no licensing is required to perform heating and air conditioning work on one- and two-family dwellings.

Code adoption and enforcement	46
Code official certification and training	21
Contractor licensing	20
Total	87

Appendix A

Descriptions of State-By-State Building Code Requirements by Points

South Carolina

South Carolina (84 points) began the process to adopt the 2009 International Codes, but legislation was passed that has prevented the adoption from being completed. As a result, the state has decided to skip the 2009 edition and instead begin to review and adopt the 2012 edition of the International Codes. Currently, South Carolina adopted and enforces the 2006 International Residential Code. Consequently, South Carolina does not require some wind provisions that are in the 2009 edition of the International Residential code – specifically, requirements for wind-rated exterior wall coverings and use of ASTM D 7158 to rate shingles.

In the area of code official certification and training, the state does not require completion of any training classes prior to certification. However, code officials are required to complete the certification process within one year of beginning work as a code official. Also, South Carolina requires a minimum of 24 hours every two years of continuing education.

With respect to contractor licensing, South Carolina requires licensing of general, plumbing, mechanical, electrical and roofing contractors, but does not require continuing education for any of these licensees except electrical contractors.

Code adoption and enforcement	45
Code official certification and training	18
Contractor licensing	21
Total	84

Connecticut

Connecticut (81 points) has a statewide code and mandatory enforcement, but the state is using an older version (2003) of the International Residential Code and has weakened its wind provisions. Connecticut does not allow local amendments to the code and has adopted a plumbing and electrical code.

Connecticut has a state program for certifying code enforcement officials. This program requires taking code classes prior to certification, becoming certified prior to employment, and continuing education – including continuing education specifically about the residential code. The state also certifies code inspectors for residential inspections.

Although Connecticut has licensing requirements for several construction trades, the state does not require general contractors to demonstrate minimum competency by passing an exam prior to licensing and does not require continuing education. With respect to other contractors, Connecticut does not require mechanical contractors to have continuing education, nor does it require roofing contractors to be licensed. Plumbing and electrical contractors are required to pass an exam prior to licensing and to take continuing education. The state has a system for consumers to file complaints against general, plumbing, mechanical, and electrical contractors, and the state may institute disciplinary action as appropriate.

Code adoption and enforcement	40
Code official certification and training	24
Contractor licensing	17
Total	81

Appendix A

Descriptions of State-By-State Building Code Requirements by Points

North Carolina

North Carolina (81 points) has adopted a statewide code (2006 International Residential Code) and mandatory enforcement. The state lost points for having weakened the wind provisions of the International Residential Code, with respect to requirements for wind-borne debris protection and load path requirements in standards for high-wind construction.

In the area of certification and training, North Carolina does not require certification prior to employment and does not require a separate certification for residential contractors.

Other deficiencies include not requiring continuing education for licensed general contractors and not requiring licensing for roofing contractors on residential projects.

Code adoption and enforcement	40
Code official certification and training	22
Contractor licensing	19
Total	81

Rhode Island

Rhode Island (78 points) has adopted the 2009 International Residential Code and requires enforcement of that code statewide. However, Rhode Island has weakened the wind provisions, specifically allowing partially enclosed design, which weakens opening protection requirements of the code. Additionally, Rhode Island has reduced other wind provisions of the model code.

Rhode Island has a program for code official certification/licensing and it includes code-specific courses prior to certification. Code officials are allowed to begin working prior to certification, but must complete the process within one year. Code officials must obtain 20 hours of continuing education every three years.

In Rhode Island, general contractors are required to be registered, but do not have to take an exam. There is no mechanism for disciplinary action, and general contractors are not required to have continuing education. Plumbing and mechanical contractors are not required to have continuing education, and there are no licensing requirements for roofing contractors.

Code adoption and enforcement	44
Code official certification and training	19
Contractor licensing	15
Total	78

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Descriptions of State-By-State Building Code Requirements by Points

Louisiana

After Hurricane Katrina, Louisiana (73 points) passed state legislation requiring mandatory code adoption and enforcement. The state is using a recent edition of the International Residential Code (2009), and is consistent with the model code for the wind provisions. The state does not allow local amendments to the code. There also are statewide plumbing and electrical codes. Louisiana has enacted legislation that does not allow sprinklers to be required in one- and two-family dwellings and townhomes, as required by the 2009 International Residential Code.

Louisiana has a state program that requires code enforcement official certification; however, there are no mandatory code classes in the certification process.

Louisiana has licensing requirements for general and plumbing contractors, including examination and continuing education. The state does not have mandatory licensing for electrical, mechanical or roofing contractors.

Code adoption and enforcement	48
Code official certification and training	15
Contractor licensing	10
Total	73

Maryland

Maryland (73 points) has adopted the 2009 International Residential Code, including the fire sprinkler requirement, with very few amendments. However, local jurisdictions are allowed to amend the code, which defeats the goal of uniformity and could weaken wind protections even in the most vulnerable coastal areas.

Maryland also has significant deficiencies in its inspector certification and training system. For example, the state does not have an inspector designation for residential inspectors, does not require code class prior to certification, and does not have a mechanism for consumers to file complaints against inspectors. Continuing education requirements are 15 hours every three years.

Maryland licenses general contractors, but they are not required to take an examination prior to licensing. Plumbing, mechanical, and electrical contractors are also licensed, are required to take an exam, and have mechanisms for disciplinary action. None of the contractor licenses require any continuing education. Roofing contractors are not required to be licensed in the state of Maryland.

Code adoption and enforcement	43
Code official certification and training	15
Contractor licensing	15
Total	73

Appendix A

Descriptions of State-By-State Building Code Requirements by Points

Georgia

Georgia (66 points) has a mandatory state-wide code (2006 International Residential Code); however, it is up to local jurisdictions to decide whether they will enforce the code. Georgia does not allow weakening amendments at the local level and has adopted a plumbing and electrical code. Georgia has passed a law that prohibits the requirement of residential sprinklers.

Georgia has a program for certification of code officials that does not require code classes prior to certification. Their program requires continuing education, but there is no mechanism for disciplinary action against an inspector by the state.

General contractors, plumbing, mechanical, and electrical contractors are required to be licensed in Georgia. They are all required to take an exam prior to licensing and are required to take continuing education. Each licensing body has a mechanism for disciplining contractors.

Code adoption and enforcement	31
Code official certification and training	15
Contractor licensing	20
Total	66

Maine

Maine (64 points) has adopted the 2009 International Residential Code without the fire sprinkler requirement. A major gap is that the code does not apply to towns with fewer than 4,000 people, which equates to approximately one-third of the state's population. The state has adopted a plumbing and electrical code.

Maine has a program for certification of code officials, including classes about the code prior to examination. The state allows individuals to be employed prior to completing the certification process, but the process must be completed within one year. The state requires continuing education, but it is a minimal requirement of nine hours every six years. The state has a certification for residential construction inspectors, and has a mechanism for disciplinary action against inspectors.

Maine requires licensing for plumbing contractors and electrical contractors; no other contractors are required to be licensed. Plumbing and electrical contractors are required to take an exam prior to licensing and disciplinary action can be taken against plumbing and electrical contractors. Electrical contractors are required to obtain continuing education.

Code adoption and enforcement	33
Code official certification and training	22
Contractor Licensing	9
Total	64

Appendix A

Descriptions of State-By-State Building Code Requirements by Points

New York

New York (60 points) has adopted the 2006 IRC and requires mandatory enforcement. The state also has adopted a plumbing and electrical code. However, New York City is exempt from the state requirements and has its own building code. Despite the metropolitan area's hurricane risk, New York City has weakened several important wind protections that are in the state code. At the state level, wind provisions have been weakened to allow partially enclosed design in lieu of the code requirements for opening protection, which is another source of concern.

The state has a program for the certification of code enforcement officials, including code classes prior to examination for certification. Continuing education also is required, and there is a system for disciplinary action for code inspectors. The state allows employment before certification, and does not have a separate certification for residential inspection.

No licenses are required for general, plumbing, mechanical, electrical or roofing contractors; a major gap in regulatory protections.

Code adoption and enforcement	37
Code official certification and training	23
Contractor Licensing	0
Total	60

New Hampshire

New Hampshire (49 points) has a statewide code (2009 International Residential Code), but does not have mandatory enforcement. Additionally, a 2011 law prohibits adoption of the sprinkler requirement, as required by the 2009 IRC. The wind provisions of the New Hampshire Code are consistent with the model code. The state adopts a plumbing and an electrical code.

New Hampshire has no statewide program to license code enforcement officials.

Contractor licensing is required for plumbing and electrical contractors, but no other trades. Plumbing and electrical contractors are required to take an exam prior to licensing, can be disciplined, and are required to obtain continuing education.

Code adoption and enforcement	39
Code official certification and training	0
Contractor licensing	10
Total	49

Appendix A

Descriptions of State-By-State Building Code Requirements by Points

Alabama

Alabama (18 points) has no statewide residential code and no enforcement requirements for the select codes that do exist. Because there are no statewide code requirements, there is no state program for certification of building inspectors. There are licensing requirements for general, plumbing, mechanical, and electrical contractors, and requirements for each trade to demonstrate minimum competency by passing a licensing exam. Also, consumers may file complaints about contractors, and licensees are subject to disciplinary action. Continuing education is required for mechanical and electrical contractors.

In November 2011, the State of Alabama provided the Alabama Energy and Residential Board with the authority to adopt a statewide residential code. In addition, a process was created that could lead to approval of the 2009 International Residential Code in the state; however, no mandatory enforcement requirement for local jurisdictions is contemplated in that process. As a result, when a local jurisdiction decides to adopt a residential code after the new system goes into effect, that jurisdiction must adopt the 2009 International Residential Code with Alabama's amendment and any further local amendments desired. Implementation is expected sometime in 2012.

Code adoption and enforcement	0
Code official certification and training	0
Contractor licensing	18
Total	18

Texas

There is no statewide code or enforcement in Texas (18 points). However, municipalities may adopt and enforce the 2006 International Residential Code as the residential building code. There is no state program for certifying code enforcement officials or licensing contractors and subcontractors. The only statewide building safety provision currently in place is the electrical code. The Texas Department of Insurance has adopted windstorm building code standards, but they are voluntary requirements that homeowners must meet for the purposes of obtaining windstorm and hail insurance from the Texas Windstorm Insurance Association (TWIA), state wind catastrophe pool.

Code adoption and enforcement	18
Code official certification and training	0
Contractor licensing	0
Total	18

Appendix A

Descriptions of State-By-State Building Code Requirements by Points

Delaware

Delaware (17 points) does not have a state-wide residential code or any mandatory enforcement, but the state has adopted a plumbing code. The state also lacks a system for code inspector certification and training. Individual jurisdictions must determine their inspectors' qualifications. Delaware has licensing requirements for plumbing, mechanical, and electrical contractors. Each license requires examination and has mechanisms to discipline contractors. Electrical contractors are required to obtain continuing education. General contractors and roofing contractors are not licensed in Delaware.

Code adoption and enforcement	4
Code official certification and training	0
Contractor licensing	13
Total	17

Mississippi

Mississippi (4 points) has virtually no regulatory process in place for building codes. Seven counties in Mississippi are required to enforce the wind and flood requirements of the 2003 International Residential Code. Otherwise, there is no statewide code, no mandatory enforcement, no programs or requirements for inspectors, and very few licensing requirements. General contractors are the only trade required to pass an exam prior to licensing and the state has mechanisms to discipline contractors.

Code adoption and enforcement	0
Code official certification and training	0
Contractor licensing	4
Total	4

Appendix B

Criteria for Rating States for Residential Codes

Part 1 – State Code Adoption And Enforcement

1. a. Do the statutes of the state require adoption of a mandatory statewide residential code?
(10 points if yes)
- b. Do state statutes adopt a residential code, but fail to mandate adoption by local jurisdictions or to require the code to be uniformly applied throughout the state?
(4 points if yes)
- c. Does the state have no statewide code? Meaning local government can use any code they choose.
(0 points if yes. Each state must fall into one and only one of the categories 1a-1c, so yes to 1a represents the maximum points for this set of questions)
2. Do the state statutes require mandatory enforcement?
(10 points)
3. What edition of the International Residential Code (IRC) does the state use?
(5 points for the 2009 code, 4 points for the 2006 code, 3 points for a pre 2006 code, and 0 points if no code is adopted)
4. a. Do the provisions of the code meet the requirement of the IRC/ASCE 7 for opening protection?
(2 points)
- b. Do the provisions of the code require roof coverings to meet the provisions of ASTM D 3161 or ASTM D 7158?
(2 points)
- c. Do the provisions of the code require that windows, doors and garage doors meet pressure ratings as provided in the IRC?
(1 point)
- d. Do the provisions of the code require that exterior wall covers (siding) be wind rated?
(1 point)
- e. Does the code direct users, in areas where wind speeds equal or exceed 110 mph per IRC/ASCE 7 maps, to the requirements of :
 - i. American Forest and Paper Association (AF&PA) Wood Frame Construction Manual for One- and Two-Family Dwellings (WFCM); or
 - ii. International Code Council (ICC) Standard for Residential Construction in High Wind Regions (ICC-600); or
 - iii. Minimum Design Loads for Buildings and Other Structures (ASCE-7); or
 - iv. American Iron and Steel Institute (AISI), Standard for Cold-Formed Steel Framing-Prescriptive Method for One- and Two-Family Dwellings (AISI S230).
 - v. Concrete construction shall be designed in accordance with the provisions of this code.
 - vi. Structural insulated panel (SIP) walls shall be designed in accordance with the provisions of this code.
(1 point if the above criteria are met)

Appendix B

Criteria for Rating States for Residential Codes

Part 1 – State Code Adoption And Enforcement

- f. The code does not allow alternate state provisions (amendments) that are less than those from the standards for:
 - i. Strapping/load path
 - ii. Sheathing attachment
(1 point if the both criteria are met)
- 5. Does the code mandate residential fire sprinklers?
(1 point if yes)
- 6. Other than wind provisions, has the state adopted other weakening amendments to the residential code?
(1 point if no)
- 7. a. Are weakening amendments allowed by local jurisdictions?
(5 points if no)

b. Are local technical amendments required to be approved by a state administrative body?
(2 points if yes, treated as "yes" if local weakening amendments are not permitted)
- 8. Does the state adopt a plumbing code?
(4 points)
- 9. Does the state adopt an electrical code?
(4 points)

Appendix B

Criteria for Rating States for Residential Codes

Part 2 – Certification And Education Of Code Officials

10. Does the state have a mandated program for code enforcement officials for certification/licensing?
(7 points if yes)
11. Does the residential/building certification/licensing program require individuals to complete code-specific educational classes before they can take the exam (residential)?
(6 points)
12. a. Does the state require that, before employment, code-enforcement personnel receive certification in the field in which they will work (residential construction)?
- b. If no, is certification required within a fixed time period?
- c. What is the time period?
(for 12a-12c, a range of points are possible based on the time frame in which code enforcement personnel receive certification: 4 points if certification is required upon employment (12a is yes), 3 points if certification is required within 2 years of employment (12a is no, 12b is yes, and 12c is equal to or less than 24 months), 2 points if the deadline for certification is more than two years after employment (12a is no, 12b is yes, and 12c is greater than 24 months), and 0 points if there is no certification requirement)
13. a. If the certification/licensing program requires continuing education, what is the interval for re-certification?
(1 point if less than or equal to two years)
- b. If continuing education is required to maintain certification/licensing, how many hours are required?
(1 point if the average required number of continuing education hours (the hours in c divided by the certification interval) is equal to greater than 7½)
- c. If the certification/licensing program requires continuing education, does the certification/licensing program include continuing education on the residential code?
(3 points if yes)
14. Does the state license inspectors separately for residential construction?
(1 point if yes)
15. Does the state have a mechanism for consumers to file complaints, and does a board have the authority to discipline inspectors?
(2 points if Yes)

Appendix B

Criteria for Rating States for Residential Codes

Part 3 – Licensing Of General Contractors And Subcontractors

16. Residential/General Contractors

- a. Do the statutes mandate licensing of residential/general contractors?
(2 points if yes)
- b. Do applicants take a test to prove minimum competency?
(1 point if yes)
- c. Do consumers have a mechanism to file complaints and does the licensing board have authority to discipline licensees?
(1 point if yes)
- d. Does licensing require continuing education?
(1 point if yes)

17. Plumbing Contractors

- a. Do the statutes mandate licensing of plumbing contractors?
(2 points if yes)
- b. Do applicants take a test to demonstrate minimum competency?
(1 point if yes)
- c. Do consumers have a mechanism to file complaints and does a board have authority to discipline plumbing contractors?
(1 point if yes)
- d. Does licensing require continuing education?
(1 point if yes)

18. Mechanical Contractors

- a. Do the statutes mandate licensing of mechanical contractors?
(2 points if yes)
- b. Do applicants take a test to demonstrate minimum competency?
(1 point if yes)

- c. Do consumers have a mechanism to file complaints and does the board have authority discipline licensees?
(1 point if yes)
- d. Does licensing require continuing education?
(1 point if yes)

19. Electrical Contractors

- a. Do the statutes mandate licensing of electrical contractors?
(2 points if yes)
- b. Do applicants take a test to demonstrate minimum competency?
(1 point if yes)
- c. Do consumers have a mechanism to file complaints and does the board have the authority to discipline licensees?
(1 point if yes)
- d. Does licensing require continuing education?
(1 point if yes)

20. Roofing Contractors

- a. Do the statutes mandate licensing of roofing contractors?
(2 points if yes)
- b. Do applicants take a test to demonstrate minimum competency?
(1 point if yes)
- c. Do consumers have a mechanism to file complaints, and does the board have the authority to discipline licensees?
(1 point if yes)
- d. Does licensing require continuing education?
(1 point if yes)

Appendix C

Effective Residential Code by State

Alabama

No mandatory statewide code

2009 International Residential Code adoption anticipated in 2012

Connecticut

2003 International Residential Code with state amendments

Delaware

No mandatory statewide code

Florida

2006 International Residential Code with state amendments

Georgia

2006 International Residential Code with state amendments

Not mandatory that local jurisdictions enforce the code

Louisiana

2009 International Residential Code with state amendments

Maine

2009 International Residential Code with state amendments

Code does not apply to towns with 4,000 residents or less

Maryland

2009 International Residential Code with state amendments

Local jurisdictions may amend the code

Massachusetts

2009 International Residential Code with state amendments

Mississippi

No mandatory statewide code

Seven counties enforce flood and wind provisions of the 2003 International Residential Code

New Hampshire

2009 International Residential Code with state amendments

Local jurisdictions may amend the code

New Jersey

2009 International Residential Code with state amendments

New York

2006 International Residential Code with state amendments

The code does not apply in New York City

North Carolina

2006 International Residential Code with state amendments

Rhode Island

2009 International Residential Code with state amendments

South Carolina

2006 International Residential Code with state amendments

Texas

2006 International Residential Code

Municipalities may adopt and enforce the 2006 International Residential Code

Texas Department of Insurance Windstorm Association's building code is the 2006 International Residential Code with amendments. It is a voluntary program for purposes of seeking windstorm and hail insurance through the Texas Windstorm Insurance Association.

Virginia

2009 International Residential Code with state amendments



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