National Institute of BUILDING SCIENCES

National Council on Building Codes and Standards

Benefits and Challenges of a Timely Code Adoption Cycle

An Authoritative Source of Innovative Solutions for the Built Environment

Benefits and Challenges of a Timely Code Adoption Cycle

A White Paper by the National Institute of Building Sciences
National Council on Building Codes and Standards (NCBCS)

Introduction

Many jurisdictions in the United States have put building codes and standards in place to protect the health, safety and welfare of their citizens. The U.S. Constitution delegates the authority to adopt and enforce building codes to state and local governments. Traditionally, the release of updated codes under the model code development process would trigger code adoption procedures at the state or local level, resulting in states and local jurisdictions adopting an updated code about every three years. In recent years, a number of states have sought to increase the time between code updates. In this white paper, the National Institute of Building Sciences National Council on Building Codes and Standards (NCBCS) identifies a number of considerations to help inform policymakers and others involved in the debate around extending the code adoption cycle.

A Quick History

Building codes and standards have existed for a long time. Enforcing standards to protect safety in buildings goes back more than 3,700 years ago to the Babylonian Dynasty and the Code of Hammurabi, which established that if a builder constructed a house that collapsed and killed the owner, the builder would be put to death. Much has evolved since. More recently, in 1821, John Quincy Adams said, "[Standards] are necessary to every occupation of human industry; to the distribution and security of every species of property; to every transaction of trade and commerce…"

Today, building codes and related standards in the United States are developed through a process that reflects the values and principles of transparency, consensus and due process. This process engages public- and private-sector stakeholders to produce model codes and standards that are essential to a robust building industry and the national economy as a whole. The model codes and standards development process brings together a broad and diverse constituency of stakeholders to reflect and deliberate on the latest science and research. Every three years, the consensus process produces updated model codes and standards that incorporate evolving technologies and market needs, all aimed at protecting the health, safety and welfare of building occupants. Through this process, builders, manufacturers and the design community benefit from a fair and democratic system that allows them to meet nationally agreed-upon goals and compete globally.

Model codes and standards provide a common code format and basic requirements for consistent and uniform design, construction, maintenance and operations of systems, structures and buildings. When adopted and enforced by state and local jurisdictions, codes and standards reduce the loss of life and property, as well as save energy and lower construction costs. They

protect the structural integrity of the structures Americans build and the investments property owners make.

The Adoption Cycle Process

Whether based on a national model code or a code developed at the state or local level, the code adoption process is typically initiated at regular intervals (depending on the requirements of the adopting jurisdiction). Under the current model code process, updated editions are released on a three-year cycle.[1] In some jurisdictions, the publication of the new edition of the model code automatically triggers the adoption process. In other jurisdictions, adoption is triggered based on some other mechanism. It is through these state or local code development and adoption cycles that localized changes to the currently adopted code or an updated model code are proposed, debated, agreed upon and ultimately incorporated into the jurisdiction's building codes.

Without a recognized code development and adoption cycle, jurisdictions would adopt a static set of codes and standards that fail to respond to the changing needs of society and the building industry itself. To assist jurisdictions in implementing a responsive code development and adoption process, it is important to understand the purpose of the code development cycle. The basic purposes of a periodic code development cycle are to:

- Correct errors within the current code or standard.
- Correct omissions within the current code or standard.
- Introduce new technologies or methods not allowed or easily implemented under the current code or standard.
- Align the code or standard with other accepted codes and standards.
- Respond to new findings from building science research, field experience or changes in societal or community expectations.
- Respond to building performance assessments following catastrophic events.
- Replace outdated provisions with new, more cost-effective methodologies or technologies.

At both the national model code level and within individual jurisdictions, the development and adoption process allows for all interested parties to be involved. This results in experts engaging in thousands of hours of debate, review and approval of proposed changes.

Once the code or standard is developed and published, jurisdictions can adopt it. Details of the adoption process vary considerably depending on whether the code is adopted by a state or local jurisdiction, via legislation or regulation. The adoption process generally includes the following steps:

1. A proposed code adoption is initiated through legislation or by a regulatory body (office, agency or council) with the authority to promulgate codes. An advisory body typically is convened to review and recommend adoption of the updated model code or revisions to the current code. Examples of typical initiators may include a State Building Office, State Appointed Code Council, State Fire Marshal, Local Building Officials, Mayor or City Council.

[1] Prior to the merger of the legacy code organizations into the International Code Council (circa 1997), model code development occurred on an 18-month cycle. Many jurisdictions permitted the use of "interim'' codes in addition to, or in lieu of, code adoptions on three-year cycles.

2. The proposed adoption undergoes a public review, as defined by the legislative or regulatory process under which the code is being considered. Public review options may include publishing a notice in key publications, filing notices of intent or holding public hearings. Interested and affected parties (including designers, contractors, home builders, building owners and general citizens) are invited to submit written or oral comments.
3. The results of the review process are incorporated into the proposed adoption and the final legislation or regulation is prepared for approval.
4. The approving authority reviews the legislation or regulation. Revisions may be submitted to the designated authority for final approval or for filing.
5. After being filed or approved, the code is scheduled to become effective on a specified date. The delay creates a grace period that allows affected stakeholders the time to become familiar with any new requirements. The period between adoption and effective date varies by jurisdiction, sometimes taking up to 18 months.

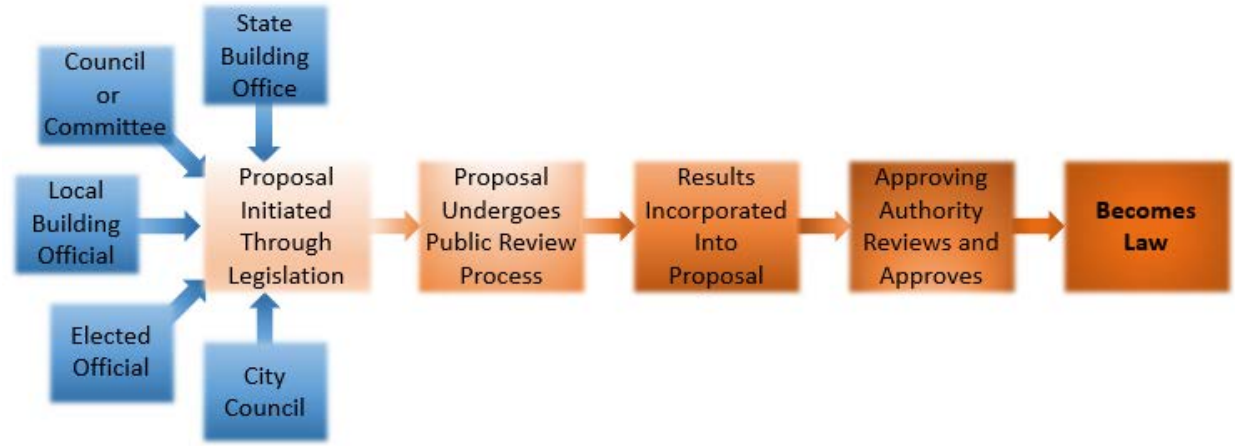

Figure 1: Code Adoption Process

Benefits of Adopting Current Codes and Standards

There are a number of benefits that come with adopting current codes and standards:

- Adopting the most current codes and standards is the most efficient and effective method of creating safe environments that protect and improve public health, safety and welfare and the economic interests of the community.
- Adopting the most current codes and standards provides the opportunity for cost savings based on the usage of the latest technology and practices (i.e. plastic pipe for plumbing, trusses vs. dimensional lumber, engineered wood products, etc.) and assures that products and materials are available in the market and comply with specifications and testing standards referenced in the code.
- Adopting the most current codes and standards provides the opportunity for increased resiliency and response to emergencies and disasters, resulting in economic benefits to the community by decreasing damage to homes and businesses from natural disasters.
- Adopting the most current codes and standards demonstrates that jurisdictions are forward-thinking and responsive to changes that improve the lives of their citizens.
- Updating building codes on a three-year cycle and offering continuous training and certification on the updated codes streamlines the process, is less cumbersome,

reduces the challenges associated with analyzing the changes and results in smaller incremental changes from one edition to another.

- As published, model codes and standards identify changes between consecutive editions, making the changes more apparent to all interested parties.
- Consumers have an expectation of a minimum level of safety when purchasing or constructing their homes and when entering a building for work or play. Having a current code in place ensures that minimum expectation, not only for consumers now but for those who will use those buildings in the future.
- Adopting the most current codes and standards minimizes liability of owners, design professionals and contractors where due diligence associated with the reasonable care (current design and construction criteria of the most recently developed referenced standards and subsequent references) conflict or provide increased care than provided by the adopted code.
- Adopting the most current codes and standards eliminates time and costs required of design professionals to demonstrate to building officials that efforts to use more current standards and references necessary to achieve a reasonable level of care still provide compliance with the enacted codes. For example, new hospitals are built to comply with up-to-date codes. These up-to-date provisions may conflict with older codes or standards, potentially costing hospitals billions of dollars a year and long delays in bringing new and updated spaces online because of conflicting codes and standards.[2]
- Adopting the most current codes and standards encourages continuous education and thereby facilitates the advancement and maintenance of the building code profession.
- According to the Insurance Services Office (ISO) National Building Code Assessment Report, communities with well-enforced, up-to-date codes generally fare better in the face of hazards.
- Adoption of current codes supports business and industry. Current codes contain provisions that accommodate the latest technologies that advance safety, water and energy efficiency and comfort. When current codes are not adopted, such technologies remain languishing “on the shelf”, and businesses are not rewarded for their ingenuity but instead are penalized for developing products and systems that cannot be installed due to conflicts with older, outdated codes.

Concerns about Adopting Current Codes and Standards

At the same time, many jurisdictions don’t update their codes and standards on a regular basis for a variety of reasons.

- Adopting the most current codes and standards may require a legislative process, which has a cost to accomplish, may be contentious and can be time-consuming to complete.
- Adopting the most current codes and standards requires training and education on the changes from previous editions.
- Adopting the most current codes and standards may result in requirements flipping back and forth as changes are made and then revised or reversed in the next edition, which can cause confusion within the industry and the need for retraining.
- Adopting updated codes may result in an increase in the cost of construction due to increased requirements or the utilization of products not required previously.

[2] ASHE Volume 1, 2012

- Design, construction and compliance tools and software packages containing the latest code provisions may not be immediately available upon release of the updated code.
- Adopting the most current codes and standards may eliminate long-standing traditional practices or common products that previously have been acceptable practices, potentially driving up the cost of construction.

The Institute conducted a roundtable discussion with key stakeholders in 2014. Results of that discussion are available from the International Code Council (ICC).[3] The recommendations that came from that effort fall into six major topics:

1. Participants recommended developing an authoritative cost/benefit tool that would be available for the code adoption process.
2. Participants recommended developing "Best Practices" of code adoption processes that can be shared.
3. Participants recommended developing education programs that explain the code process for different sectors (e.g. code developers, enforcers, design professionals, politicians, building owners, etc.).
4. Participants recommended a model "living code" development and adoption process that explores the concept of "rolling code adoptions," and perhaps providing jurisdictions with "subscription" options.
5. Participants recommended increasing code official involvement in code development. Those who participate in the code development process are more likely to understand the code changes and therefore more likely to be able to articulate the need for the update(s).
6. Participants recommended involving architectural and engineering schools. Many participants expressed the concern that a number of the architects and engineers they came into contact with had limited or no exposure to building codes.

Conclusion

The primary purpose of codes and standards is to protect the health, safety and welfare of building occupants, while making communities more resilient and energy and water efficient. There are benefits and challenges to adopting codes every three years. It is important that jurisdictions consider all of these factors when making a decision to change the structure of their current code adoption process and use a balanced approach that considers the costs, benefits and long-term safety of their citizens, properties and communities.

[3] "Maintaining vs. Extending the Current Code Adoption Cycle: A Roundtable Discussion Sponsored by the International Code Council," https://www.iccsafe.org/wp-content/uploads/ICCRoundtable_CodeCycle.pdf.

National Institute of Building Sciences
1090 Vermont Avenue, NW Suite 700
Washington, DC 20005-4950
Phone: (202) 289-7800
Fax: (202) 289-1092
www.nibs.org