

CHAPTER 3

Development of Building Codes in the United States

This chapter traces the evolution of local and model building regulations and of other standards that have affected building rehabilitation in the United States. Building regulations have typically followed, and have been partly inspired by, high-profile disasters. While such events have often provided final impetus for change, other factors have also promoted reform. A single event is less likely to cause widespread change than to act as a catalyst for reforms that might have come gradually in any case.

Major City and Building Fires in the United States

This list does not include fires that occurred as a result of acts of war. All listed fires caused major life and property loss.

Date	Disaster	Code Action
1788 and 1794	New Orleans Conflagrations	
1805	Detroit Conflagration	
1811	Richmond Theater Fire	
1813	Portsmouth, New Hampshire Conflagration	The Portsmouth, New Hampshire, Brick Act of 1814
1820, 1854, and 1862	Troy, New York Conflagrations	
1835	Great Fire of New York	Rebuilding with masonry and construction of new water system
1849	St. Louis Fire	Local requirements for masonry construction and new water system
1866	Great Fire of Portland, Maine	
1871	Great Chicago Fire	<i>Chicago Building Code (1875)</i>

(Continued)

Date	Disaster	Code Action
1871	Peshtigo, Wisconsin Fire	
1871	Great Boston Fire	
1871	Port Huron Conflagration	
1876	Conway's Theater Fire, New York	
1889	Great Seattle Fire	Local zoning to create fire district
1901	Great Fire of 1901, Jacksonville, Florida	
1903	Iroquois Theater Fire	
1904	Great Baltimore Fire	<i>National Building Code</i> recommended by the National Board of Fire Underwriters (1905)
1906	San Francisco Earthquake and Fire	Codes were relaxed to permit quick reconstruction
1908	Rhodes Opera House Fire, Boyertown, Pennsylvania	
1911	Triangle Shirtwaist Fire	
1917	Great Atlanta Fire	Local ordinance prohibiting wood shingles
1923	Berkeley, California Conflagration	
1942	Coconut Grove Fire	
1944	Hartford Circus Fire	Local laws banning circus tents
1946	LaSalle Hotel Fire	Local requirements for hotel safety
1958	Our Lady of Angels Fire, Chicago	Nationwide changes in school safety procedures. Local fire code changes. New amendments to Illinois state fire code.
1982	Dorothy Mae Apartments, Los Angeles	Retroactive ordinance requiring automatic sprinklers in common areas, inside entry doors into each residential unit, and fire alarm systems in buildings 3 stories and greater.

The table illustrates a number of major fires that have occurred in the United States. Many of these have resulted in building and fire code changes. Besides disasters, influences may include a series of smaller events, scientific and engineering advances that make problems more open to solution, publications by reformers, economic forces, and historical or cultural factors.

Although regulation of buildings may be traced to ancient times, tension always remains between the needs of society and the rights of the property owner. This

tension may result in codes evolving through clear necessity, for example, to prevent recurrence of a disaster. Simultaneously, pressure in favor of regulation may come from social reformers, civic leaders, or affected industries, such as the insurance industry.

LOCAL CODES

Housing and building laws in the United States began at the level of local government and developed alongside public health regulations. The first comprehensive building law in the United States was the Tenement House Act passed by the City of New York in 1867. That may be put into context with the then-nascent science of epidemiology, which is generally agreed to have begun with John Snow's 1854 discovery that a cholera outbreak in London could be traced to a polluted well, thus establishing an indisputable scientific connection between environment and health.

In the decade prior to the Tenement House Act, New York had seen wave after wave of immigration. Vast numbers of the newcomers were poor; many could not speak fluent English. Profit-minded landlords developed minimal housing in response to this demand. Health and safety conditions in these tenements were unspeakable.

Spurred by both idealism and fear of contagion, the Tenement House Act addressed minimal safety and health improvements; revisions in 1879 and 1901 increased the standards to include detailed provisions for lighting, sanitation, ventilation, room size, and other characteristics.

A similar alliance of reform and self-interest spurred the growth of local building regulations. Losses of life and property in several fires led to widespread support for development and enforcement of building standards. The earliest building controls were enacted at the local level, notably the Portsmouth, New Hampshire, Brick Act of 1814 and the *Chicago Building Code* of 1875. These reforms were urged by insurance companies as a way of controlling financial loss, and were generally supported by public outrage over the conditions that had produced the disasters.

EARLY MODEL CODES

A model code is a document prepared by a group of experts who have no legislative authority. It is not written for a specific jurisdiction and is not law until it is adopted by a jurisdiction, often with modifications. Model codes make it possible for jurisdictions to benefit from professional expertise without having to maintain a staff capable of writing a code. In addition, adoption of a model code produces coordinated requirements that are more or less uniform over a wide area. This, in turn, stimulates building by removing legal complexities from the process.

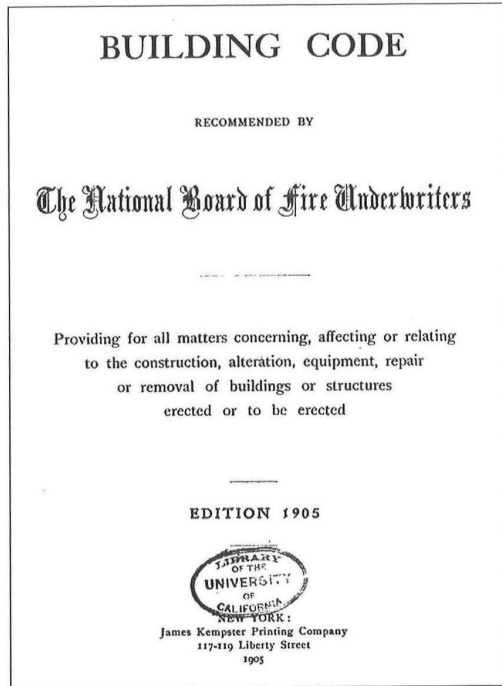


Figure 3.1 The cover of the National Board of Fire Underwriters Building Code published in 1905. It was widely adopted by local jurisdictions and became the basis for many local codes. From *University of California library*, as scanned by Google

Theater Fire in 1903 and the 1911 Triangle Shirtwaist Fire. Though promulgated by a professional code-writing organization rather than by the insurance industry, the *Building Exits Code* did not meet the need for a professional comprehensive code because of its restricted scope. The current NFPA publication that corresponds to the *Building Exits Code* is the *Life Safety Code*, commonly called NFPA 101.

The earliest model code in the United States was the *National Building Code* recommended by the National Board of Fire Underwriters, published in 1905 in response to fire insurance losses in the Great Baltimore Fire of 1904 (Figure 3.1). The purpose of this code was to limit fire spread from the building of fire origin. Provisions included requirements for fire walls on property lines, control of roofing material, limitations on windows in fire-resistant walls, and other measures.

Adopted in toto by many larger cities across the United States, the *National Building Code* also served as the basis for locally written codes. Because it was promulgated by an industry that was not organized for the purpose of writing codes, the document had no specified update procedure and little, if any, opportunity for public involvement in changes.

In 1913, standards for fire safety in schools and factories and for building exiting were published by the National Fire Protection Association (NFPA). The standards were expanded and published in 1927 as the *Building Exits Code*. Intentionally limited in scope to adequate egress, this document addressed the conditions that had led to several disasters, including the Iroquois

COMPREHENSIVE MODEL CODES

Regional Model Codes

In 1927, the Pacific Coast Building Officials promulgated the *Pacific Coast Building Code*, which later became the *Uniform Building Code* (Figure 3.2). The organization of this code differed from that of the *National Building Code* in that it ranked occupancies by life risk and linked fire safety criteria to specific occupancies. The code included provisions for exiting and control of material finishes. In addition, this code contained numerous structural provisions organized by building material type. The *Uniform Building Code* was widely used west of the Mississippi River until the adoption of the *International Building Code* in 2000. The *National Building Code* was promulgated by the insurance industry. It was the basis for most local and state codes until late in the last century.

The *Southern Building Code*, later the *Southern Standard Building Code* (SBC), was first published by the Southern Building Code Congress in 1945. In the southern states, hurricanes were a major issue, so design for wind was an important consideration in the code.

The *Basic Building Code*, published by the Building Officials of America (now the Building Officials and Code Administrators International) (BOCA), was first published in 1950. It served the Midwest and New England regions. BOCA later obtained the right to use the title *National Building Code*. Some editions of the code are called the *BOCA/National Building Code*.

These organizations that published the three model codes were membership organizations with members from the building industry, the building regulatory community, and the public. Originally, only building officials could vote on code changes. However, the code change process was an open process involving submittals, hearings with industry and public involvement, and open advisory voting by the membership. The model building codes were updated on a three-year cycle.

International Building Code

Beginning in the late 1980s, efforts were made to improve consistency and uniformity among the three model codes. By 1990, agreement was reached on consistent chapter organization in the codes, reasonably consistent occupancy definitions, and construction types. The three model codes agreed to form the International Code Council and to publish one national model code. This resulted in the publication of the 2000 edition of the *International Building Code*. The *International Building Code* is updated on a three-year cycle.

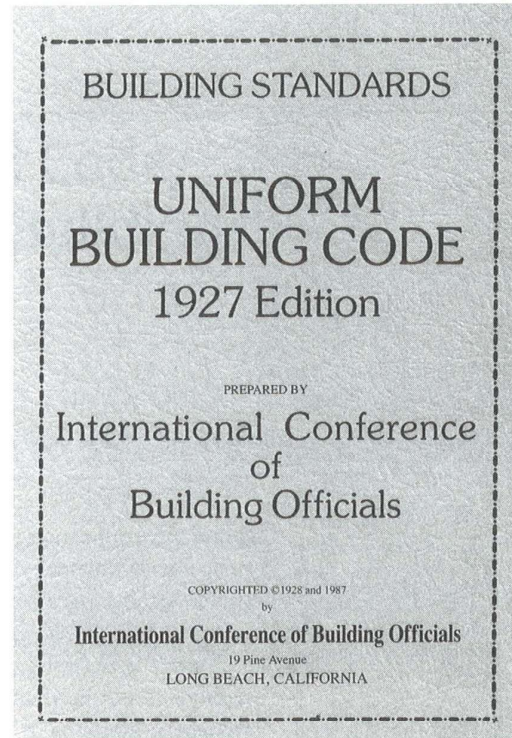


Figure 3.2 A reprint of the cover of the first *Uniform Building Code* in 1927. This code is different in its organization than previous codes. It is organized by occupancy and construction requirements, structural material design, egress, and other requirements. Its organization became the basis for most later building codes. © *International Code Council*