

Breaking the Codes:

How State and Local Governments are Reforming Building Codes to Encourage Rehabilitation of Existing Structures

by

**Philip Mattera
Good Jobs First**

January 2006

**© 2006 Good Jobs First
1616 P Street NW Suite 210
Washington, DC 20036
(202) 232-1616
www.goodjobsfirst.org
info@goodjobsfirst.org**

Author's e-mail: pmattera@goodjobsfirst.org

Table of Contents

Executive Summary.....	4
1. From the Code of Hammurabi to modern building codes.....	6
2. Model codes: the private sector as a source of regulation	8
3. Origins of the rehab codes.....	10
4. The world according to NARRP.....	11
5. Early adoption in Massachusetts	13
6. Rehab code reform sprouts in the Garden State.....	14
7. Codes get smart in Maryland.....	15
8. Rehab reform reaches Rhode Island	16
9. From pilot to policy in North Carolina.....	17
10. A model rehab code for everyone else	18
11. The NFPA challenge to I-Codes	19
12. Case studies of projects accomplished via rehab codes.....	20
13. Measuring the impact of the rehab codes.....	24
14. What’s next for rehab codes?	25
Acknowledgments.....	26
Bibliography	27
Endnotes	30

Executive Summary

Over the last decade, a quiet revolution has been taking place in the way that state and local governments across the country regulate commercial and residential construction. A new flexibility in the application of building codes is making possible the rehabilitation of structures that would otherwise have remained neglected or abandoned. The new wave of “rehab codes” is playing a significant role in the redevelopment of core urban areas—a process that is a vital counterbalance to unchecked suburban sprawl.

The roots of code reform can be found in the 1960s, when the federal government began to explore ways to combat urban blight and create more affordable housing. Building codes—which spread during the early 20th Century in response to disasters such as the Triangle Shirtwaist Fire and exposés about the abysmal conditions of tenement housing—were now seen as an impediment. Part of the problem was inconsistency in codes, which are generally adopted and enforced by local governments acting independently. But there was also a realization that codes, by requiring work on existing buildings to meet the same standards as those applied to new construction, were creating unrealistic and unnecessary hurdles for worthy rehab projects.

By the 1990s, this last argument was embraced by a new wing of the environmental movement espousing smart growth. Working with planners, architects, historic preservationists and others, state-level smart growth advocates began pressing for alteration of building codes in ways that encouraged rehab without compromising basic safety considerations. The first place where these efforts bore major fruit was New Jersey, which in 1998 put into place a Rehab Subcode that no longer subjected projects involving existing buildings to the criteria imposed on new construction. The Rehab Subcode generated a substantial jump in rehab activity in the state, and it also inspired several other states to adopt similar reforms. Among these were Maryland, Rhode Island and North Carolina.

Reproducing the New Jersey example has been hampered by the fact that most other states do not exercise central control over building code policies. In many cases, state governments can do no more than recommend that localities adopt a particular approach. Yet there are signs that even this is having an impact. States generally endorse one of the model building codes issued by private groups such as the International Code Council (ICC). In 2003 the ICC issued its International Existing Building Code (IEBC), which shares many features with the New Jersey and other rehab codes. So far, 14 states have adopted the IEBC statewide, and in 13 other states it has been adopted directly by various localities. As the IEBC becomes better known, it is

expected to be adopted by more of the roughly 40 states that use other ICC model codes.

Good Jobs First interviewed public officials, smart growth advocates, representatives of the model code groups and others about spread of rehab codes. We've learned that there is widespread agreement about the value of code reform. Johns Hopkins, who ran Maryland's Smart Codes program and is now executive director of the preservation group Baltimore Heritage Inc., says that rehab code reform is "now embraced and accepted in the mainstream."¹

Yet we have also learned of obstacles to change. Building inspectors in some places are resisting the change, and local and state officials often are not doing enough to publicize the existence of the rehab code, especially in jurisdictions where its use may be optional.

We have been surprised to learn that little research has been done on the impact of the rehab codes. We eventually found that researchers at the University of North Carolina have addressed the issue in a study that has not yet been published. We were given access to this work—which shows a positive impact, especially for smaller projects—and summarize it in our report. We also feature brief case studies of projects in states such as New Jersey, Maryland and North Carolina that were made feasible (or at least assisted) by the existence of rehab codes.

There is every indication that rehab codes will continue to spread throughout the country, though it appears this will happen mostly through adoption of the model rehab codes such as the IEBC rather than through state-specific codes. The process could also be assisted by the decision on the part of the National Trust for Historic Preservation to promote rehab codes nationwide.

1. From the Code of Hammurabi to modern building codes

Regulation of building methods and materials dates as far back as the Code of Hammurabi in ancient Babylon. The initial concern was to prevent building collapses, whereas later in history, the focus was on preventing fire and restricting its spread. Governments tended to pay attention to the subject only after calamities such as the Great London Fire of 1666. In the United States, oversight of construction became more rigorous in the wake of the Chicago Fire of 1871, the San Francisco Earthquake and Fire of 1906 and the Triangle Shirtwaist Fire of 1911. Sudden catastrophes were not the only factor in changing public policy. The efforts of Jacob Riis and other crusaders in exposing the abysmal state of tenement housing in cities such as New York also galvanized support for building reform measures in the interests of public health.

By the early 20th Century, governments across the United States were adopting building codes that governed the way residential and commercial structures were erected. The legal basis for the codes was the police power of state governments, which was interpreted as including the authority to protect citizens from the consequences of faulty construction. In most states, control over the adoption and enforcement of building codes was put under the control of local officials. This arrangement seemed to make sense. Construction, after all, was a local activity, and local officials were presumably in the best position to factor in variations in materials, terrain, climate, etc.

Yet as early as the 1920s, there were complaints about inconsistency in the way building codes were being implemented. In 1920 the Senate Select Committee on Reconstruction and Production concluded:

The building codes of the country have not been developed upon scientific data, but rather on compromises; they are not uniform in principle and in many instances involve an additional cost of construction without assuring most useful or more durable buildings.²

Two years later, Secretary of Commerce Herbert Hoover reported to Congress that conflicting building codes were increasing construction costs by 10 to 20 percent.³ Hoover appointed a Building Code Committee to draft recommendations that could be used by local governments in preparing codes. The committee worked with the National Bureau of Standards until 1933, when funding was curtailed.

The debate over building codes resumed in the late 1950s out of concern that the crazy quilt of codes was discouraging innovation in building methods (such as prefabricated plumbing or electrical installations) and the development of new, lower-

cost building materials. Inconsistency in codes was depicted as an obstacle to the goal of transforming building from a fragmented, low-productivity activity into something that more closely resembled efficient mass production.

At this point, however, the issue was not on the radar screen of public officials. It remained a matter of concern mainly for private analysts who dreamed of bringing assembly-line techniques to construction. In 1958 *House and Home* magazine brought many of those analysts together for a widely publicized conference whose participants concluded that conflicting local codes were costing homebuyers an average of \$1,000 a house, or about 5 to 7.5 percent of the typical purchase price.⁴

It was not until the mid-1960s that building codes became a significant public policy issue. In 1965 President Johnson listed codes as one of the topics that merited study when he called for a national effort to understand the causes of urban blight and to find ways to expand the availability of affordable housing for low-income Americans. Congress supported the initiative, which led to the formation of the National Commission on Urban Problems. In 1968 the Commission issued a report on housing and construction issues that included a chapter on codes that highlighted challenges for all levels of government.⁵

Local officials were urged to promote “the uniform application of up-to-date building and mechanical codes over an area large enough to allow mass production methods and specialization.”⁶ State officials were encouraged to promote uniformity throughout each state. The federal government was urged to create a National Institute of Building Sciences to promote new materials and methods. It was also urged to use its grant-making powers to press local officials to adjust their codes. In one of the first references to rehab in the building code debate, the Commission called on the Department of Housing and Urban Development to develop model standards for existing structures that were more flexible than those applied to new construction.⁷ Eventually, Congress did create a National Institute of Building Sciences, and HUD did develop a model code for rehabilitation, which is discussed below.

During the 1970s and early 1980s, the assault on building codes was embraced by conservative economists who were developing an overall critique of government regulation. A 1975 book by Charles Field and Steven Rivkin referred in its title to the “building code burden” and argued that “building code reform must be rigorously pursued.”⁸ A 1977 article by Sharon Oster and John Quigley endorsed the view that codes were a barrier to innovation and a contributor to higher housing costs while arguing that neither of the main arguments for the existence of codes—protection of homebuyers and external benefits (protection from a fire hazard that would be caused by a poorly built neighboring house)—was fundamentally valid.⁹ In a 1982 volume

sponsored by the Pacific Institute for Public Policy Research, Peter Colwell and James Kau called the whole system of building codes “intellectually and morally bankrupt” and said it should be abandoned.¹⁰

Calls for abolition were not taken seriously, but the cause of code reform was elevated to new prominence by Jack Kemp in his role as Secretary of Housing and Urban Development in the George H.W. Bush administration. In 1990 Kemp, who was a strong advocate of market-oriented urban redevelopment policy, formed an Advisory Commission on Regulatory Barriers to Affordable Housing. The Commission cited rigid building codes as one of a long list of factors—among them exclusionary zoning, rent control and certain environmental rules—that stood in the way of expanding affordable housing.¹¹

Although some conservative analysts continued to question the validity of codes altogether, the 1990s saw an ideological shift in the debate. The anti-regulatory approach waned, as did the focus on the inconsistency of codes in different jurisdictions. Instead, the new focus was on the need to adapt codes to the particular needs of housing rehabilitation. Eventually, the adoption of rehab codes became a goal for the smart growth wing of the environmental movement. Before discussing that progression, it is necessary to provide some background on the central role played by model codes.

2. Model codes: the private sector as a source of regulation

When we speak of regulation, it is assumed that we are talking about mandatory rules devised and enforced by government regulators. When it comes to building codes, the reality is more complicated.

Oversight of construction has long been an issue not only for government, but also for private parties—above all, insurance companies—concerned about the consequences of faulty building methods and materials. Insurers have a material interest in encouraging standards that make buildings more resistant to fire and other forms of damage. In the same way that Underwriters Laboratories Inc. has since 1894 promoted higher standards of safety in product manufacturing, property insurers have encouraged more rigorous criteria for construction.

In the late 19th Century, groups such as the National Board of Fire Underwriters, the Underwriters National Electric Association and the National Fire Protection Association emerged to promote standards for construction that would reduce the likelihood of accidents—and thereby reduce payouts by insurers. The most comprehensive of these

was the Recommended Building Code (later called the National Building Code) issued by the National Board of Fire Underwriters.

As governments around the country became more involved in regulation of construction, other private organizations were formed to promote comprehensive model building codes. In 1927 the Uniform Building Code was issued by a group of Pacific coast building officials who later became known as the International Conference of Building Officials (ICBO). A similar group called the Southern Building Code Congress International (SBCCI) introduced the Southern Standard Building Code in 1945. Five years later, the Building Officials Conference of America (BOCA) , based in Illinois, put out its Basic Building Code.¹²

Over the following decades, each of these code groups became a near regional monopoly. The ICBO held sway throughout the west, BOCA dominated the northeast and the Great Lakes states, and SBCCI led the way in the southeast. State and local governments tended to follow the guidance of the code group that prevailed in their region. When the model codes were modified, most jurisdictions went along, though it was not uncommon for local amendments to be adopted.

The existence of the model code groups helped bring some order to the patchwork of local code practices, and the regional groups helped to bring about innovations in methods and materials. During the 1960s, impatient critics complained that localities did not adopt changes in the model codes fast enough. The variations among the different regional models were seen as an obstacle to national uniformity. Purists such as Charles Field and Steven Rivkin wrote that “model codes may not be part of the solution to building code diversity, but part of the problem.”¹³

Much of this criticism faded away as the regional code groups began to work cooperatively and then consolidate. In 1994 the three bodies formed the International Code Council (ICC), and since then they have steadily abandoned their separate identities to become a unified national organization with a single set of model codes that are known collectively as the I-Codes. The world of codes is not completely unified, however. The National Fire Protection Association (NFPA) maintains its own model building standards that are used by many states, often in conjunction with the I-Codes. As will be discussed below, both the ICC and the NFPA have contributed to the spread of codes specifically oriented to rehab projects.

3. Origins of the rehab codes

The call by the National Commission on Urban Problems to adapt building codes to the needs of rehab projects reverberated long after the publication of the Commission's 1968 report. It became a key element of the national strategy for promoting housing rehab, which took a giant step forward with the passage of the Housing and Community Development Act of 1974. It also dovetailed with the growing movement for historic preservation. The National Trust for Historic Preservation held the first national conference on code reform in 1974.

While there was steady progress at the state and local level in adjusting codes for historic preservation, change was slower for rehab in general. A key development came in 1980, when the Department of Housing and Urban Development issued a publication called *Rehabilitation Guidelines*. Among other things, the *Guidelines* highlighted two of the issues that have been at the heart of rehab code reform:

- The 25-50% Rule
- The Change of Occupancy Rule

The 25-50% Rule, which was contained in nearly all traditional building codes and then in the regional model codes, stated that if the total estimated cost of a rehab project exceeded 50 percent of the cost to replace the building, the project had to bring the entire building into compliance with the current code governing new construction. There were variations of the rule for projects whose cost fell below 50 percent of the replacement cost. One version said that projects between 25 and 50 percent of the replacement cost would have to meet new-construction standards only in the portions of the building being rehabbed. In more limited projects (those below 25 percent), the new work might have to meet the code standards (if any) that were in effect when the structure was first built—or else the local building inspector was allowed to exercise his or her judgment in deciding whether to allow the project to proceed.

The Change of Occupancy Rule, which was also in most codes, stated simply that a change in the occupancy or use of an existing building triggered a requirement that it meet the current standards for new construction. For example, if industrial space was to be converted to residential use, it would have to be modified to meet the current code for new housing.

HUD's *Rehabilitation Guidelines* accelerated a process of change that was already beginning within the three regional code bodies. The ICBO had deleted the 25-50% rule from its model code in 1979, BOCA did so in 1981 and SBCCI followed suit in 1982.

Each of the three bodies had modified the Change of Occupancy Rule in the late 1970s and made additional changes after the HUD guidelines appeared. These changes were made to the sections of the model codes (usually designated as Chapter 34) devoted to existing buildings.

As a next step, the regional bodies began to issue preliminary codes devoted exclusively to existing buildings involved in rehab efforts. BOCA issued the Existing Structures Code in 1984, the ICBO released the Uniform Code for Building Conservation in 1985 and the SBCCI came out with its Standard Existing Building Code in 1988. These initial versions merely provided general guidance in applying the main codes to existing buildings, and in some cases they included the full text of HUD's *Rehabilitation Guidelines*.

These initial existing-building codes did not catch on quickly among local officials. A decade after the release of the Uniform Code for Building Conservation, an ICBO official admitted to a HUD symposium that he knew of only a couple of cases in which the code had been adopted—by a single county in Nevada and by the state of Washington but only for historic structures.¹⁴ When HUD's Advisory Commission on Regulatory Barriers to Affordable Housing issued its 1991 report, codes were still seen as a significant obstacle to rehab. The Commission wrote:

Chief among the urban regulatory barriers [to affordable housing] are building codes geared to new construction rather than to the rehabilitation of existing buildings. The codes often require state-of-the-art materials and methods that are inconsistent with those originally used. For example, introducing newer technologies sometimes requires the wholesale replacement of plumbing and electrical systems that are still quite serviceable.¹⁵

4. The world according to NARRP

To advance the movement toward full-blown rehab codes, HUD commissioned several experts to develop a national model rehab code that would be proposed for adoption by the regional code bodies. The result of that effort came in 1997 with the release of the Nationally Applicable Recommended Rehabilitation Provisions (NARRP). According to HUD:

The purpose of the NARRP is to set forth a regulatory framework that will encourage the continued use or re-use of legally existing buildings through a predictable system of requirements that will maintain or improve public health, safety and welfare. The intention is to clarify the requirements that apply when different types of work are performed in existing buildings, and to establish proportionality between the work an

owner of an existing building intends to do on a voluntary basis and the additional improvements required to accompany that work as matter of regulatory policy. A regulatory framework that achieves such proportionality will go far towards ensuring that building rehabilitation work will be both affordable and cost effective.¹⁶

The key terms here are *predictability* and *proportionality*, which are applied to the nature of the work to be performed, to the area of the building in which it will be performed and to “hazard category scales” that are based on the type of occupancy. NARRP builds this framework by creating more precise categories for the various types of work that previously were lumped together under the label *alteration* of existing structures. Instead, NARRP uses three different categories: renovation, alteration and reconstruction (as well as repair, change of occupancy and addition).

Renovation, like *repair*, involves no reconfiguration of space. The difference between the two is one of quantity (i.e., an extensive repair job becomes a renovation). In terms of materials, however, NARRP allows repairs to use materials like those already present in the building, even if the materials are no longer permitted by the building code, while renovations require the use of materials and methods specified in the code.

Alteration is work that involves the reconfiguration of spaces other than exits and shared means of egress. Alterations are treated like renovations, except that alteration of an entire occupancy or more than 50 percent of a building area moves it into the category of reconstruction.

Reconstruction is work that involves the reconfiguration of spaces that includes exits and/or shared means of egress, or extensive alteration as noted above. Under NARRP, reconstruction projects must, like renovation and alteration, meet code requirements for materials and methods. Reconstruction must also satisfy a list of “life safety improvements” that, for the most part, apply only to the portion of the building where the work is being done.

Overall, NARRP promotes the principle that an existing building in which work is to be done need not be brought up to full compliance with the code requirements for new construction. Yet NARRP is not itself a building code. It is a framework by which such codes can be adapted to facilitate rehab projects.

That includes the model codes. In 2000 the ICBO revised its Uniform Code for Building Conservation to conform with NARRP and issued it as a draft Uniform Code for Existing Buildings. NARRP was also a significant influence when the three regional bodies created a joint committee under the ICC to draft a unified code for existing buildings

(see below). It was also adopted directly by some states (particularly Maryland) and cities that rewrote their own codes.

Today NARRP is assigned a modest role, even by HUD. In a phone interview with the author of this paper, David Engel, the HUD point person on NARRP, advised us “not to get bogged down with NARRP” and to focus instead on the rehab codes of the ICC and the key states that have developed their own versions.¹⁷ Taking Engel’s advice, we will look first at some of those key states and then at the efforts of the ICC.

5. Early adoption in Massachusetts

In the late 1970s, while the regional code bodies were beginning to address issues relating to existing buildings, Massachusetts took the plunge on rehab code reform. In 1979 it adopted a new section for its building code called Article 22 (later redesignated Article 34).¹⁸

The motivation for Article 22 included the problems that were faced by projects such as the conversion of the Atlas Stores warehouse on Boston’s waterfront into the Children’s Museum. Since the cost of the project exceeded 50 percent of the building’s value, the 25-50 Percent Rule required that code standards for new museum buildings be met. This was impossible in the 100-year-old structure. The conversion was able to proceed only through the granting of many variances, a solution that might not have been possible for a project of lesser prominence.

In fact, one study described the effort in the mid-1970s of the owner of a six-unit apartment house in Cambridge to modernize the building by installing modern central heating, replacing the roof, redoing the kitchens and baths and removing the lead paint. Using the 25-50 Percent Rule, the building inspector insisted on a set of additional changes that would have increased the budget by 40 percent, prompting the owner to abandon the project.

One of the most significant innovations of Article 22 was to be more flexible when there was a change of occupancy in a building. Rather than applying code requirements rigidly to such changes, Article 22 took into account whether the change in occupancy raised the hazard level in the building. It also explicitly encouraged inspectors to accept equivalent alternatives to what the code required for new construction.

While Article 22 was a significant step forward, it still subjected rehab projects to standards designed for new construction. It was not until much later in New Jersey that rehab was given a code of its own.

6. Rehab code reform sprouts in the Garden State

The Garden State was fertile ground for a homegrown comprehensive rehab code because it is one of only half a dozen states that impose a set of mandatory building regulations on all jurisdictions. In the mid-1990s, officials in the Department of Community Affairs (DCA) decided that the old code, especially its 25-50 Percent Rule, was creating a significant obstacle to rehab in a state with an old housing stock. In 1995 the DCA gave a grant to the Center for Urban Policy Research (CUPR) at Rutgers University to coordinate the development of a code of standards for rehab projects that would be entirely distinct from the code for new construction.

With CUPR Professor David Listokin taking the lead, the Center put together a committee that included local code officials, contractors, architects, preservationists and others. “Anyone who wanted a seat was included,” said John Terry, Supervisor of DCA’s Code Assistance Unit, in a recent interview. He noted, however, that his boss William Connolly, played a key role in the process, which lasted for more than two years. It was during this period that a draft version of the Subcode was embraced by HUD consultants in the creation of NARRP, which was published seven months before the Subcode took effect in January 1998.

According to Connolly:

The Rehabilitation Subcode is not only a change in building code requirements, it is a change in building code philosophy. The past philosophy had been that if a building owner has money to spend on his building, he should be required to spend a good portion of that money to make that building approach the current code for new structures. There are two flaws with this way of thinking. The first is assuming that the goal is to have existing buildings meet the current code for new building construction. Using new building standards for renovated buildings can result in expensive improvements that have little real benefit in terms of occupant safety. The second is that this philosophy ignores the positive effect of money invested to improve an existing building even when not specifically earmarked for code compliance. The past philosophy said to building owners, if you can’t make the leap up to the standards we have set, don’t take the step to make your building better. The Rehabilitation Subcode addresses this problem by, to the greatest extent possible, letting the applicant choose the scope of the project, and by establishing specific requirements that make sense in existing buildings.¹⁹

As in NARRP, the Subcode makes careful distinctions among the different types of projects based on the extent of the work being undertaken. It also establishes five sets

of requirements: Products and Practices; Materials and Methods; New Building Elements; Basic Requirements; and Supplemental Requirements. The more extensive the scope of the work, the more of these sets of requirements it has to meet. For example, the most limited projects—those that fall under the category of Repair—need comply only with the requirements relating to Products and Practices. At the other end, Reconstruction projects may have to comply with all five sets.²⁰

The New Jersey Subcode has received various honors, including the Innovations in American Government Award sponsored by the Ford Foundation and administered by Harvard University's Kennedy School of Government and the Council for Excellence in Government.

More importantly, there is evidence that the Subcode had a significant stimulative effect on rehab activity, particularly in the state's larger cities. Total rehab activity in Newark was up 59.2 percent in 1998 over the year before. In Jersey City the rise was 83.5 percent, and in Trenton 40.1 percent.²¹ Below we will take a closer look at research on the impact of the Subcode.

7. Codes get smart in Maryland

In the late 1990s Maryland Governor Parris Glendening pushed a series of policies to control the spread of sprawl and to encourage investment within the state's core urban areas. Dubbed "Smart Growth," the agenda also embraced the growing movement of rehab code reform as well as code changes that encouraged the preservation of historic buildings. Together, these Maryland reforms came to be known as Smart Codes.

Prodded by the Glendening Administration, the state legislature passed a bill in April 2000 that created the Maryland Building Rehabilitation Code Program. An Advisory Council then drew up the details of the new rehab code, which took effect in 2001.

Members of the Advisory Council studied the New Jersey Subcode but decided it was not suitable for various reasons, including the fact that Maryland, unlike New Jersey, does not have a uniform set of building regulations for the entire state. Maryland does issue a state code, but localities are allowed to amend it at will. Instead, the Advisory Council drew up a code based heavily on HUD's NARRP. The Smart Code also had to take into account the existing overall building code, drawn from the ICC, and the fire code, drawn from the NFPA.

According to Johns Hopkins, who ran the Smart Codes program and is now executive director of the preservation group Baltimore Heritage Inc., there was no significant

opposition to the rehab code. There was initially some concern among local building and fire code officials about how it would work, Hopkins noted, even though some of those officials participated in the drafting process. “The state launched an extensive training effort that helped alleviate uncertainty,” he added.²²

Hopkins said that the Smart Codes program never had the funding to measure its impact on the volume of rehab activity in the state, but he said it appeared that the greatest effect was seen with larger commercial projects and historic buildings. Below we will give brief case studies of projects that were made feasible by the Maryland code reform.

8. Rehab reform reaches Rhode Island

In early 2000, says Scott Wolf, Executive Director of Grow Smart Rhode Island, he and his organization were hearing about the positive impact of the New Jersey Subcode.²³ Grow Smart decided that a rehab code also made sense for the Ocean State, with its large number of older buildings, including former textile mills that developers were seeking to adapt for new commercial and residential uses. Another advantage was that Rhode Island was, like New Jersey, one of those few states with mandatory statewide building codes.

Wolf and his colleagues brought together builders, developers, architects and others to generate support for the idea. They also held more technical briefings for building inspectors and fire marshals. Some of these events featured speakers from New Jersey, including Bill Connolly. Grow Smart, which also received support from officials in the state building department, then took the issue to the state legislature and had no difficulty winning passage of a bill that authorized the creation of a rehab code but delegated the details to a drafting committee.

That committee, which met for more than a year, started with the New Jersey Subcode, but at the urging of fire safety officials it ultimately decided to use NFPA guidelines for existing buildings instead. The new code, which was adopted in 2002, was unusual in that it was voluntary. Property owners could choose to use it or the standard building code. One advantage of the new code was that it put emphasis on active fire protection (e.g. the use of sprinklers) rather than rigid structural requirements. It also allowed property owners to develop older buildings on a phased basis.

Assessing the impact of the Rhode Island rehab code is made difficult by several complicating factors:

- The first is that local building inspectors and fire marshals did not completely accept the new code. According to Wolf, these local officials often discouraged property owners from opting to use it—by implying that it would make it much more difficult to get the project approved. According to one Rhode Island preservationist who asked not to be quoted by name: “Local code guys are not highly trained professionals. They like what they know...They conveyed the idea that permits would be easier to obtain under the old code...All in all, it’s been pretty disappointing.”
- A second factor was the change in attitudes brought about by the February 2003 fire at the Station nightclub in the Providence suburb of West Warwick. The deaths of more than 100 people in that disaster prompted the state to implement tougher fire safety regulations for older buildings that could conflict with the rehab code. At the same time, more power was given to local fire marshals, some of whom were already resisting the rehab code.
- There has been a rise in rehab activity in the state in recent years, but according to Wolf and other observers, it is difficult to attribute the increase to the rehab code. A more important factor is seen to be the Historic Preservation Tax Credit that also went into effect in 2002. Edward Sanderson, Executive Director of the Rhode Island Historical Preservation & Heritage Committee, attributes the more than \$900 million in rehab projects in the state during the past few years primarily to the tax credit, among the most generous in the country.²⁴ Thomas Coffey Jr., Executive Secretary of the Rehabilitation Code Board, also acknowledges the role of the tax credits but says that the rehab code has been important as well, thanks to its role in allowing for acceleration in project schedules.²⁵

Overall, there is agreement that the Rhode Island rehab code was a step forward, but its real impact is difficult to discern in a complex regulatory environment.

9. From pilot to policy in North Carolina

Another state that was inspired by the New Jersey Subcode is North Carolina. In 2002 the Tarheel State commenced a pilot project in which a rehab code was made available to property owners in 12 counties, subject to approval by local authorities.

According to Drueid Roberson, a Rehab Code Specialist with Mecklenburg County (which includes Charlotte), the optional code came to be used most often in

Mecklenburg as well as the city of Winston-Salem and the counties of New Hanover and Catawba.²⁶

In Mecklenburg County, rehab projects worth a total of about \$107 million were undertaken under the rehab code in the period from March 2002 to June 2004. Roberson notes that the most common advantage of the new code is the ability to retain existing staircases.

As of January 1, 2006, the rehab code was made available to all jurisdictions in the state on a permanent basis. Below we will describe some projects in which the code was used.

10. A model rehab code for everyone else

In the late 1990s, as the International Code Council was steadily replacing the regional code bodies, the leadership of the ICC recognized it needed to respond to the growing interest in rehab codes. In 1999 the ICC formed a drafting committee led by John Terry of New Jersey. The eventual result of the process was the International Existing Building Code (IEBC) that was issued in 2003.

According to Hamid Naderi of ICC, the drafting committee studied all the available rehab codes but ended up basing the IEBC mainly on the concepts and philosophy of the New Jersey Subcode, the Maryland rehab code, HUD's NARRP and the Uniform Code for Building Conservation.²⁷

Once it was released, the IEBC became one of the family of International Codes (or I-Codes) that are extensively used by state and/or local jurisdictions throughout the country. Yet when a locality adopts ICC's main codes such as the International Building Code, it does not automatically adopt the IEBC as well. Moreover, when a jurisdiction adopts the IEBC (or any other I-Code), it may adopt its own amendments at the same time.

The differences between the IEBC and the other rehab codes, according to Naderi, are mainly in their organization and in some of their technical details. The fact that the IEBC is part of the I-Code family, he says, makes it much more convenient for state and local officials. Naderi notes that jurisdictions are likely to move away from the practice pioneered by New Jersey of developing a rehab code from scratch: "Today states are more likely to adopt the IEBC rather than writing their own." He adds: "The IEBC is continuously kept up-to-date through a national and open code hearing process and is coordinated with the remainder of the I-Codes."

Since the IEBC was introduced in 2003, it has been adopted on a statewide basis by 13 states²⁸:

- Connecticut
- Florida
- Louisiana
- Maine
- Michigan
- Montana
- Nevada (public buildings only)
- New Mexico
- Ohio
- Oklahoma
- Pennsylvania
- Virginia
- West Virginia

Among these 13, the most recent adoption of the IEBC was by Louisiana, where Gov. Kathleen Blanco signed a bill in November 2005 that called for the mandatory use of various I-Codes. IEBC will thus be applied to structures that are being rebuilt in the wake of Hurricane Katrina.

In addition, this year New York State (outside New York City) is putting into place the Existing Building Code of New York, which is based on the IEBC.²⁹

In 13 other states the IEBC has been adopted by some localities³⁰:

- Alabama
- Colorado
- Illinois
- Iowa
- Maryland
- Mississippi
- Missouri
- Nebraska
- South Carolina
- South Dakota
- Tennessee
- Texas
- Washington

Naderi expects to see continuing interest in the IEBC. After all, he says, “in some jurisdictions the overwhelming majority of permit activity is related to existing buildings.”

11. The NFPA challenge to I-Codes

Although the International Code Council has supplanted the prior regional code bodies, it turns out that the International Building Code is not the only game in town when it comes to model building codes that can be adopted by states and cities. The National Fire Protection Association, which has long been used by governments as a

source of supplementary standards on fire safety, has expanded its offerings to include a full-blown building code (NFPA 5000) that is challenging the dominance of ICC's International Building Code. In places such as New York City and Phoenix, the competition between the two models resulted in contentious public hearings, but the NFPA has had little success in luring governments away from the I-Codes since it introduced NFPA 5000 in 2002.³¹

When it comes to rehab, there is little difference between the I-Codes and the NFPA 5000. The latter has a section (Chapter 15) that deals with existing buildings and provides for flexibility along the lines of the New Jersey Subcode, the NARRP and the IEBC. Gary Keith, a vice president at the NFPA, states that Chapter 15 of the NFPA 5000 and the IEBC are "similar in philosophy."³² It thus appears that cities and states making use of any of the model codes will be adopting provisions friendly to rehab.

12. Case studies of projects accomplished via rehab codes

Bramhall Avenue Apartments in Jersey City, New Jersey

The Bramhall Avenue apartment complex of five four-story structures was built in the 1930s as housing for blue-collar immigrant workers.³³ By the 1970s, the complex was in a state of decline as a result of adverse economic changes in the neighborhood. In the late 1990s, Domus Corporation acquired the property with the intention of renovating it for affordable housing. The \$7.35 million project, which received \$4.7 million in federal low-income tax credit assistance and other government help, was completed in 2001. The renovation achieved a savings in construction costs of more than \$1 million (about 20 percent) thanks to the Rehab Subcode. The major benefits came from not having to widen entryways, stairwell and hallways as would have been required under the standard building code. Thanks to these savings the developer was able to completely replace the wiring and plumbing systems rather than simply repairing them.

Stone Lodge in Chester, New Jersey

In 1999 the U.S. Department of Housing and Urban Development published a report called *Innovative Rehabilitation Provisions* that was supposed to provide a real-life application of HUD's Nationally Applicable Recommended Rehabilitation Provisions.³⁴ The NAHB Research Center, which prepared the report, used as its case study the renovation of a 200-year-old house in Chester, New Jersey that was actually done under the state's Rehab Subcode, but the Center decided that the strong similarities between the Subcode and NARRP made the project relevant for both codes.

The project involved the construction of a 28x28 addition to the house, known as Stone Lodge, and reconstruction of the existing kitchen. The estimated budget was \$133,691—which was in excess of 50 percent of the value of the existing structure. Under New Jersey’s old code, this would have triggered a requirement that the entire house comply with the regulations governing new buildings—regulations that obviously did not exist when the house was originally constructed in the 18th Century. The Rehab Subcode and NARRP, allowing for the fact that the building had functioned as a residence for more than two centuries, required no alterations beyond the intended scope of the project.

The old code would have required significant modifications to the house’s foundation, its egress windows, the width of its corridors, the configuration of its stairs and the height of its ceilings. The estimated cost of these modifications was \$27,562 or 20.6 percent more than the previous project budget. It also would have added at least two weeks to the original 16-week timetable for the work.

Essex and Sussex apartments in Spring Lake, New Jersey

During the first half of the 20th Century, the Essex and Sussex Hotel was a prime summer destination on the New Jersey shore for wealthy residents of New York City and Philadelphia. The six-story, wood-framed structure of more than 400 rooms was opulent enough to be used in films such as the *Great Gatsby*, yet it was shut down in 1985, a victim of changing tastes in tourism.

As documented by *Building Design and Construction* magazine, efforts to renovate and reopen the Essex and Sussex as an apartment complex began soon after the hotel closed.³⁵ One developer went bankrupt, but another stepped in with a plan to transform the property into 165 senior-living apartments. In the late 1990s, the new developer, Applied Development Associates, and its architects and contractors, took advantage of the recently enacted New Jersey Subcode. Architect Gary Kanalstein said that the Subcode “enabled us to maintain the existing balloon wood frame structure, which other codes would have called for us to demolish—even though the building is built like the Rock of Gibraltar.”

The \$15.8 million rehab of the Essex and Sussex was the first major project completed under the New Jersey Subcode.

Stewart's Building in Baltimore, Maryland

Opened as a department store in 1899, the 250,000-square-foot Stewart's Building was once a key destination in the Westside retail district of downtown Baltimore.³⁶ As the focus of shopping moved to the suburbs after the Second World War, Stewart's went into decline, and the building was vacated in 1979. Two decades later, an effort to renovate the building was undertaken with financial support from the Weinberg Foundation. The project was one of the first to be done under Maryland's rehab code.

The main savings were achieved in connection with stairways. Under the old code, it would have been necessary to demolish and rebuild the stairs and raise the height of the handrails. Not doing so saved about \$250,000. This was not a large portion of the total \$24 million spent on the project—much of which went to costs associated with the creation of a mixed-use technology center—but it wasn't insignificant.

Centerpoint project in Baltimore, Maryland

Centerpoint, another project in downtown Baltimore, involves the preservation of about eight historic structures in combination with a new apartment tower and parking garage that together occupy nearly an entire square block. The overall development, which is nearing completion, involves some 650,000 square feet of commercial and residential space with a total construction value of about \$56 million, about 40 percent of which involves the older structures. The feasibility of the project was in question until the Maryland rehab code allowed the architects to avoid adding an additional stairway in the older structures (mostly former garment industry lofts) and made it possible to preserve fragile tin ceilings.³⁷

Charter House in Silver Spring, Maryland

Charter House, a 15-story apartment house built in downtown Silver Spring in 1965, was later altered so that several of its floors were turned into an early form of assisted living. Now, Homes for America, a non-profit housing corporation, is upgrading the entire building as housing for seniors. The Maryland rehab code is making it possible to convert the floors that had been devoted to assisted living back into standard residential units without doing a gut renovation. This helped to make the project, which has a construction value of \$5.5 million, feasible.³⁸

Nissen Apartment Building in Winston-Salem, North Carolina

The Nissen was a 17-story steel-and-concrete office building when it was erected in downtown Winston-Salem in 1926. It reopened in 2005 as a luxury apartment house after a \$30 million renovation accomplished thanks to the North Carolina Rehab Code. It was the first high-rise in the state to undergo a total reconstruction utilizing the new code.³⁹

The renovated building has 145 one- and two-bedroom rental apartments along with a fitness center and a rooftop pool, but no parking. Shops and restaurants are planned for the ground floor. A grand staircase in the lobby was preserved thanks to the rehab code, which also allowed the project to avoid the expensive requirement of meeting the seismic standards for new buildings. The project benefited from a \$14.5 million HUD loan and a \$3.5 million loan from the city.

Theoretical project in Detroit, Michigan

The previous case studies were all examples of renovations that actually took place. Here we summarize an analysis of the potential benefits of the rehab code in Michigan for a pair of abandoned buildings in downtown Detroit. The analysis, which was carried out at Michigan State University by Prof. Matt Syal and Logan Anjaneyulu, looked at two adjacent eight-story residential buildings that were constructed around 1910 and have been vacant since the late 1980s.⁴⁰ They considered what it would cost to renovate the buildings, which appeared to be structurally sound, under the regular Michigan Building Code (MBC) and under the Michigan Existing Building Code (MEBC), which is based on the IEBC.

Both codes would require spending on new roofing, new interior construction, new elevators, new mechanical systems and new electrical wiring. Yet the MBC would also require significant modifications in four major categories: fire protection, means of egress, interior space dimensions and interior finishes. Meeting the MBC's requirement for stairways by itself would cost more than \$1 million, while the rules for ceiling height would add \$307,000 and those for the fire resistance rating of walls \$227,000.

Overall, the Michigan State researchers found that rehabilitating the building using the MBC would cost about \$9.2 million, which was only \$963,000 less than the estimated cost of demolishing the existing structures and erecting a comparable new building from scratch. By contrast, rehabilitation using the MEBC was estimated at \$7.5 million—18.5 percent less than the MBC rehab cost and about 25 percent less than the cost of putting up a replacement building.

13. Measuring the impact of the rehab codes

Given the tangible benefits of the rehab codes illustrated in the case studies above, one would expect to find an extensive body of research measuring the extent to which these regulatory changes have resulted in a higher volume of rehab activity. It turns out, however, that such research is virtually non-existent.

The reasons for this vacuum include the fact that the state agencies overseeing the rehab codes are sparsely funded and have thus not had the resources to commission research of their effectiveness. Even if one had the funding, in most states there would be limitations based on the relatively short period of time the rehab codes have been in effect or the fact that the codes are not adopted throughout the state. In other states such as Rhode Island, there are complicating factors such as significant resistance to the code, on the one hand, and a competing variable (the introduction of a historic preservation tax credit) on the other.

The only state that is free of these limitations is New Jersey, where the Rehab Subcode has been in effect throughout the state for eight years. We will consider some basic statistics relating to construction activity in the state and then summarize some not-yet-published academic research on the impact of the Rehab Subcode.

The most detailed source of statistical information on construction in the United States is the Census Bureau. Twice a decade (in the years ending in 2 and 7), Census collects detailed data on construction (and other industries) in each state and in the nation as a whole. Unfortunately, the state-by-state breakdowns for the 2002 Census have not yet been published, so it is not yet possible to compare the numbers to the 1997 Census, which was conducted just before the New Jersey Subcode went into effect.

The Census Bureau also collects data on spending specifically for residential improvements and repairs, but it does not break down the information by state (because of the limited size of the sample used). The building permit data collected by the Bureau focuses on new construction.

One available indicator is the total number of employees working in the construction sector, as calculated by the U.S. Bureau of Labor Statistics. This does not distinguish between those involved in rehab and those involved in new construction, but it does give a general indication of the vitality of the building sector in New Jersey compared to the nation as a whole. In the period from 1998, when the Subcode took effect, to 2004, construction employment in the Garden State rose from 136,100 to 166,000—a rise of 22 percent. For the country as a whole, in the same period construction employment rose from 6.15 million to 6.96 million—an increase of just 13.3 percent.

While other factors certainly could have played a role, this shows that the period since the adoption of the Subcode has seen a robust building sector in the state.

In the course of gathering information for this report, we learned that more rigorous analysis of the Subcode had been done by researchers at the University of North Carolina at Chapel Hill but had not yet been published. The authors of the research—Raymond Burby, David Salvesen and Michael Creed—were kind enough to share their work with us and give us permission to summarize it here.⁴¹ The UNC researchers looked at changes in the volume of rehab activity in 77 local government jurisdictions in New Jersey as indicated by building permit data obtained from local officials. They found that in the period from 1998 (when the Subcode took effect) to 2002, the average annual value (in constant 2002 dollars) of rehab permits in those jurisdictions was \$4.9 million, which represented an increase of 38 percent over the comparable value for the two years before the Subcode took effect.

The researchers compared the growth of rehab in New Jersey to that in comparable parts of nearby states (Connecticut, New York and Pennsylvania) and found little difference. This prompted them to do a more sophisticated comparative analysis, which showed that, on average, the New Jersey Subcode helped bring about a larger *number* of permits per jurisdiction than in the comparison areas. The difference, however, was small—even more so when the *value* of permits was considered. From this, the researchers conclude that the benefit of the Subcode has been felt primarily in small residential projects.

There is no indication in the UNC study whether the researchers took into account the extent to which rehab activity in the comparison areas may have been stimulated by local government adoption of model codes that over time (as discussed above) incorporated provisions facilitating rehab projects.

14. What's next for rehab codes?

There is every indication that an increasing number of states and localities will embrace rehab-friendly building codes. Most are likely to do so by adopting one of the national model codes—the IEBC and to a lesser extent the NFPA 5000—that incorporate many of the same principles as those in the rehab codes devised by individual states. The movement could also be assisted by a decision on the part of the National Trust for Historic Preservation to promote the adoption of rehab codes throughout the country.⁴² So far we have mainly anecdotal evidence about the impact of the rehab codes, but even in the absence of irrefutable quantitative data, there is every reason to believe that they are contributing to the rebirth of America's older urban areas.

Acknowledgments

Good Jobs First gratefully acknowledges the financial support of the Ford Foundation, which made the preparation of this report possible.

The author expresses his appreciation to the following individuals who read and commented on a draft of the report (but who are not responsible for the final content): Hamid Naderi of the International Code Council, Elizabeth Schilling of Smart Growth America, Daniel Cardozo of Adams Broadwell Joseph & Cardozo, Johns Hopkins of Baltimore Heritage Inc., Renee Viers of the National Trust for Historic Preservation, Matt Syal of the Construction Management Program at Michigan State University and Raymond Burby and Mike Creed of the University of North Carolina's Department of City and Regional Planning.

Thanks also to the following individuals who provided valuable information during the preparation of the report: Scott Wolf of Grow Smart Rhode Island; Mac Nichols of Economics Research Associates; Mimi Giguere and Scott Sider of Kann & Associates; David Hattis of Building Technology Inc.; Emily Wadhams and George Siekkinen of the National Trust for Historic Preservation; Kennedy Lawson Smith and Leslie Tucker of the Community Land Use and Economics Group; John Terry of the New Jersey Department of Community Affairs; Tim Frank of the Sierra Club; Janet Milkman of 10,000 Friends of Pennsylvania; Don Chen of Smart Growth America; Dru Roberson of the Mecklenburg County (NC) Rehab Code Division; Gary Keith of the National Fire Protection Association; Thomas Coffey Jr. of the Rhode Island Fire Safety Code Board of Appeal and Rehab Code Board; Ted Sanderson of the Rhode Island Historical & Preservation Committee; George Nee of the Rhode Island AFL-CIO; Bill Stewart of the New York State Division of Code Enforcement; John Balson of the Pennsylvania Bureau of Occupational & Industrial Safety; David Engel of the U.S. Department of Housing & Urban Development; Tim Torma and Carlton Eley of the Environmental Protection Agency; Chris Burger of the AFL-CIO Building and Construction Trades Department; Charles Pattison of 1000 Friends of Florida; Dru Schmidt-Perkins of 1000 Friends of Maryland; Alexandra Lee of the Boston Society of Architects; Greg Mancini of Build RI; Carolina Briones of the Los Angeles Alliance for a New Economy; Kristina Egan of the Massachusetts Smart Growth Alliance; Brad Garmon of the Michigan Environmental Council; Carolyn Fitch of the National Conference of States on Building Codes and Standards; Carita Tanner of the National Institute of Building Sciences; Joann Harkins and George Spaith of the New Jersey Builders Association; and Tim Evans of New Jersey Future.

Bibliography

Advisory Commission on Intergovernmental Relations. *Building Codes: A Program for Intergovernmental Reform*. Washington, DC 1966.

Advisory Commission on Regulatory Barriers to Affordable Housing. *“Not in My Backyard”: Removing Barriers to Affordable Housing*, Government Printing Office: Washington, DC 1991.

Anjaneyulu, Logan and Matt Syal. *Building Rehabilitation: A Promising Tool for Urban Revitalization in Detroit, Michigan*. M.S. Thesis, Construction Management Program, Michigan State University, 2003.

“Building Costs and Residential Rehabilitation: Tilting at Windmills,” *Columbia Journal of Law and Social Problems*, August 1969, p.88.

Burby, Raymond and David Salvesen and Michael Creed. “Achieving Smart Growth through Smart Building Codes,” forthcoming in 2006 in the *Journal of the American Planning Association*.

Burby, Raymond J. et al. “Building Code Enforcement Burdens and Central City Decline,” *APA Journal*, Spring 2000, p.143.

Colwell, Peter F. and James B. Kau. “The Economics of Building Codes and Standards,” in M. Bruce Johnson, ed., *Resolving the Housing Crisis: Government Policy, Decontrol and the Public Interest*. Cambridge: Ballinger Publishing Company 1982.

Connolly, William M. *Rules that Make Sense: New Jersey’s Rehabilitation Subcode*, Pioneer Institute for Public Policy Research, 1999.

Cooke, Patrick W., ed. *Selected Papers Dealing With Regulatory Concerns of Building Rehabilitation*, Washington, DC: National Bureau of Standards 1979.

Field, Charles G. and Steven R. Rivkin. *The Building Code Burden*. Lexington, Mass.: Lexington Books 1975.

Final Report of the Task Force on Housing Costs. Government Printing Office: Washington, DC 1978.

Fischer, Richard. “Rehabilitation Subcode Success,” *PM/Public Management*, March 2001, p.12.

Forest, Ben. "New Jersey Revs Up Its Rehabs," *Planning*, August 1999, p.10.

Innovative Rehabilitation Provisions: A Demonstration of the Nationally Applicable Recommended Rehabilitation Provisions. Prepared for the U.S. Department of Housing and Urban Development's Office of Policy Development and Research by the NAHB Research Center, Inc. March 1999.

Kelly, Eric Damian. "Fair Housing, Good Housing or Expensive Housing? Are Building Codes Part of the Problem or Part of the Solution?" *The John Marshall Law Review*, Winter 1996.

Lang, Laura. "Putting the I-Codes to Work for You," *Public Management*, May 2003.

Listokin, David and Barbara Listokin. *Barriers to the Rehabilitation of Affordable Housing*, prepared for the U.S. Department of Housing and Urban Development, Office of Policy Development and Research. May 2001.

Listokin, David and David Hattis. *Building Codes and Housing*, paper prepared for the U.S. Department of Housing and Urban Development's Conference on Regulatory Barriers to Affordable Housing, April 2004.

Listokin, David and David Hattis. "Building Codes and Housing." *Cityscape: A Journal of Policy Development and Research*, vol. 8, no.1 2005.

Mahtesian, Charles. "A Rehab-Friendly Building Code," *Governing*, March 1999.

National Commission on Urban Problems. *Building the American City*. Government Printing Office: Washington, DC 1968.

Nolon, John. "Housing Rehabilitation and Code Enforcement," *Journal of Housing*, vol. 38, no. 2. February 1981.

Oster, Sharon M. and John M. Quigley. "Regulatory Barriers to the Diffusion of Innovation: Some Evidence from Building Codes," *The Bell Journal of Economics*, Autumn 1977, p.361.

President's Committee on Urban Housing. *A Decent Home*. Government Printing Office: Washington, DC 1968.

President's Committee on Urban Housing. *Technical Papers*. Government Printing Office: Washington, DC 1968.

"Rehab Codes Offer Flexibility," *Planning*, July 2005.

Report of the President's Commission on Housing. GPO 1982.

Salvesen, David and Raymond Burby and Mike Creed. *The Impact of Rehabilitation Codes on Building Rehabilitation in New Jersey and Maryland*. Sponsored by the Fannie Mae Foundation. May 2004 (unpublished).

Schill, Michael. *Regulations and Housing Development: What We Know and What We Need to Know*, paper prepared for the U.S. Department of Housing and Urban Development's Conference on Regulatory Barriers to Affordable Housing, April 2004.

Seidel, Stephen R. *Housing Costs & Government Regulations: Confronting the Regulatory Maze*. New Brunswick, NJ: Center for Urban Policy Research, 1978.

Smart Codes in Your Community: A Guide to Building Rehabilitation Codes, prepared for the Department of Housing and Urban Development by Building Technology Inc., August 2001.

Stabile, Tom. "Code Red: City Toils Through Effort to Adopt a New Building Code," *New York Construction*, February 2005.

Swope, Christopher. "The Code War," *Governing*, January 2006.

Syal, Matt and Chris Shay and Faron Supanich-Goldner. "Streamlining Building Rehabilitation Codes to Encourage Revitalization." *Housing Facts & Findings* (Fannie Mae Foundation), vol. 3, no. 2, 2001.

U.S. Department of Housing and Urban Development, Office of Policy Development and Research. *The Status of Building Regulations for Housing Rehabilitation: A National Symposium - Summary Report*. August 1995.

U.S. Department of Housing and Urban Development, Office of Policy Development and Research. "Why Not In Our Community? Removing Barriers to Affordable Housing: An Update to the Report of the Advisory Commission on Regulatory Barriers to Affordable Housing." February 2005.

Endnotes

-
- ¹. Telephone interview with Johns Hopkins, December 13, 2005.
- ². U.S. Senate Report No. 829, Select Committee on Reconstruction and Production, March 2, 1921, p.2; cited in Advisory Commission on Intergovernmental Relations, *Building Codes: A Program for Intergovernmental Reform*, January 1966, p.2.
- ³. *ibid.* p.2.
- ⁴. *ibid.* pp.2-3.
- ⁵. *Building the American City: Report of the National Commission on Urban Problems to the Congress and to the President of the United States*, Washington, DC, 1968.
- ⁶. *ibid.* p.265.
- ⁷. *ibid.* p.269.
- ⁸. Charles G. Field and Steven R. Rivkin. *The Building Code Burden*. Lexington, Mass.: Lexington Books/D.C. Heath and Company, 1975, p.129.
- ⁹. Sharon M. Oster and John M. Quigley. "Regulatory Barriers to the Diffusion of Innovation: Some Evidence from Building Codes." *The Bell Journal of Economics*. Vo. 8, no.2. Autumn 1977, p.364.
- ¹⁰. Peter F. Colwell and James B. Kau. "The Economics of Building Codes and Standards," in M. Bruce Johnson, editor. *Resolving the Housing Crisis: Government Policy, Decontrol and the Public Interest*. Cambridge, Mass.: Ballinger Publishing Company, 1982, pp. 77 and 57.
- ¹¹. "Not In My Back Yard": *Removing Barriers to Affordable Housing*. Report to President Bush and Secretary Kemp by the Advisory Commission on Regulatory Barriers to Affordable Housing. Washington, DC, 1991; available online at: <http://www.huduser.org/Publications/pdf/NotInMyBackyard.pdf>.
- ¹². BOCA's full name was later changed to Building Officials and Code Administrators International, and the name of its code was changed to the BOCA National Building Code.
- ¹³. Field and Rivkin. *op. cit.*, p.35.
- ¹⁴. U.S. Department of Housing and Urban Development, Office of Policy Development and Research. *The Status of Building Regulations for Housing Rehabilitation-A National Symposium: Summary Report*. August 1995, p.8; available online at: <http://www.huduser.org/intercept.asp?loc=/Publications/pdf/workshop.pdf>.
- ¹⁵. "Not in My Back Yard." *op. cit.* p.6.
- ¹⁶. U.S. Department of Housing and Urban Development website, Introduction to NARRP; online at http://www.huduser.org/publications/destech/narrp/intro_narrp.html
- ¹⁷. Telephone interview with David Engel, Director of HUD's Affordable Housing Research and Technology Division, December 7, 2005.
- ¹⁸. This section draws from "Rehab Barrier Case Study: State of Massachusetts-Article 34," in David Listokin et al. *Barriers to the Rehabilitation of Affordable Housing. Vol. II: Case Studies*. Prepared for the U.S. Department of Housing and Urban Development Office of Policy Development and Research, May 2001; available online at <http://www.huduser.org/publications/pdf/brahvol2.pdf>

-
- ¹⁹. William M. Connolly. “Rules That Make Sense: New Jersey’s Rehabilitation Subcode” [no date]; posted on the web page of the Pioneer Institute for Public Policy Research describing the winners of the 1999 Better Government Competition: http://www.pioneerinstitute.org/pdf/bgc_rulesmake.pdf.
- ²⁰. The text of the Subcode and explanatory documents can be found at: <http://www.state.nj.us/dca/codes/rehab/>
- ²¹. Connolly, op. cit. p. 38.
- ²². Telephone interview with Johns Hopkins, December 13, 2005 and follow-up e-mail from him dated January 10, 2006.
- ²³. Telephone interview with Scott Wolf, December 13, 2005.
- ²⁴. Telephone interview with Edward Sanderson, December 16, 2005.
- ²⁵. Telephone interview with Thomas Coffey Jr., December 14, 2005.
- ²⁶. Telephone interview with Druied Roberson, December 16, 2005.
- ²⁷. Telephone interview with Hamid Naderi, December 14, 2005 and follow-up e-mail from him dated January 20, 2006.
- ²⁸. See the ICC’s tally of state adoptions at <http://www.iccsafe.org/government/stateadoptions.pdf> (Updated: 1/3/2006). In some cases, states adopted the IEBC before 2003 while it was still in draft form. As of early January 2006, the Louisiana adoption was not yet on the ICC site but was mentioned in an ICC newsletter at http://www.iccsafe.org/news/eNews/archive/ICCeNews_1205.html#R3
- ²⁹. The current Appendix K of the New York State Building code contains provisions for existing buildings and is based on the IEBC.
- ³⁰. *ibid.*
- ³¹. See Tom Stabile, “Code Red: City Toils Through Effort to Adopt a New Building Code,” *New York Construction*, February 2005 and Christopher Swope, “The Code War,” *Governing*, January 2006.
- ³². Telephone interview with Gary Keith, December 7, 2005.
- ³³. This case study is drawn from: David Salvesen, Raymond Burby and Mike Creed. *The Impact of Rehabilitation Codes on Building Rehabilitation in New Jersey and Maryland*. Sponsored by the Fannie Mae Foundation. May 2004 (unpublished).
- ³⁴. *Innovative Rehabilitation Provisions: A Demonstration of the Nationally Applicable Recommended Rehabilitation Provisions*. Prepared for the U.S. Department of Housing and Urban Development’s Office of Policy Development and Research by the NAHB Research Center, Inc. March 1999; available online at <http://www.huduser.org/intercept.asp?loc=/Publications/PDF/innrehab.pdf>
- ³⁵. This case study is drawn from: Renée Young, “Turning the Tide: Conversion of a Former Seaside Hotel into Apartments for Seniors is Made Feasible by New Jersey’s Rehabilitation Code,” *Building Design and Construction*, October 1, 2002, p.48.
- ³⁶. This case study is drawn from: David Salvesen, Raymond Burby and Mike Creed. *The Impact of Rehabilitation Codes on Building Rehabilitation in New Jersey and Maryland*. Sponsored by the Fannie Mae Foundation. May 2004 (unpublished).

-
- ³⁷. Telephone interviews with Mimi Giguere and Scott Sider of Kann & Associates, January 23, 2006.
- ³⁸. Telephone interview with Scott Sider of Kann & Associates, January 23, 2006
- ³⁹. This case study is drawn from: *North Carolina Rehab Code Two-Year Report*, August 10, 2004, pp.13-15; available online at <http://www.ncrehabcode.com/news/pdf/2-YrRprt.pdf> . See also Kim Underwood, "The Feel of a City: New Residents of Nissen Building Apartments Say that Living Downtown is Proving Exciting," *Winston-Salem Journal*, October 29, 2005.
- ⁴⁰. This case study is drawn from: Logan Anjaneyulu, and Matt Syal. *Building Rehabilitation as a Promising Tool for Urban Revitalization in Detroit*, Michigan, M.S. thesis, Construction Management Program, Michigan State University, East Lansing, MI, 2003. A copy of the thesis was provided by Prof. Syal.
- ⁴¹. The work we summarize here is: Raymond Burby, David Salvesen and Michael Creed. "Achieving Smart Growth through Smart Building Codes," forthcoming in 2006 in the *Journal of the American Planning Association*.
- ⁴². Telephone interview with Renee Viers of the National Trust on November 28, 2005.