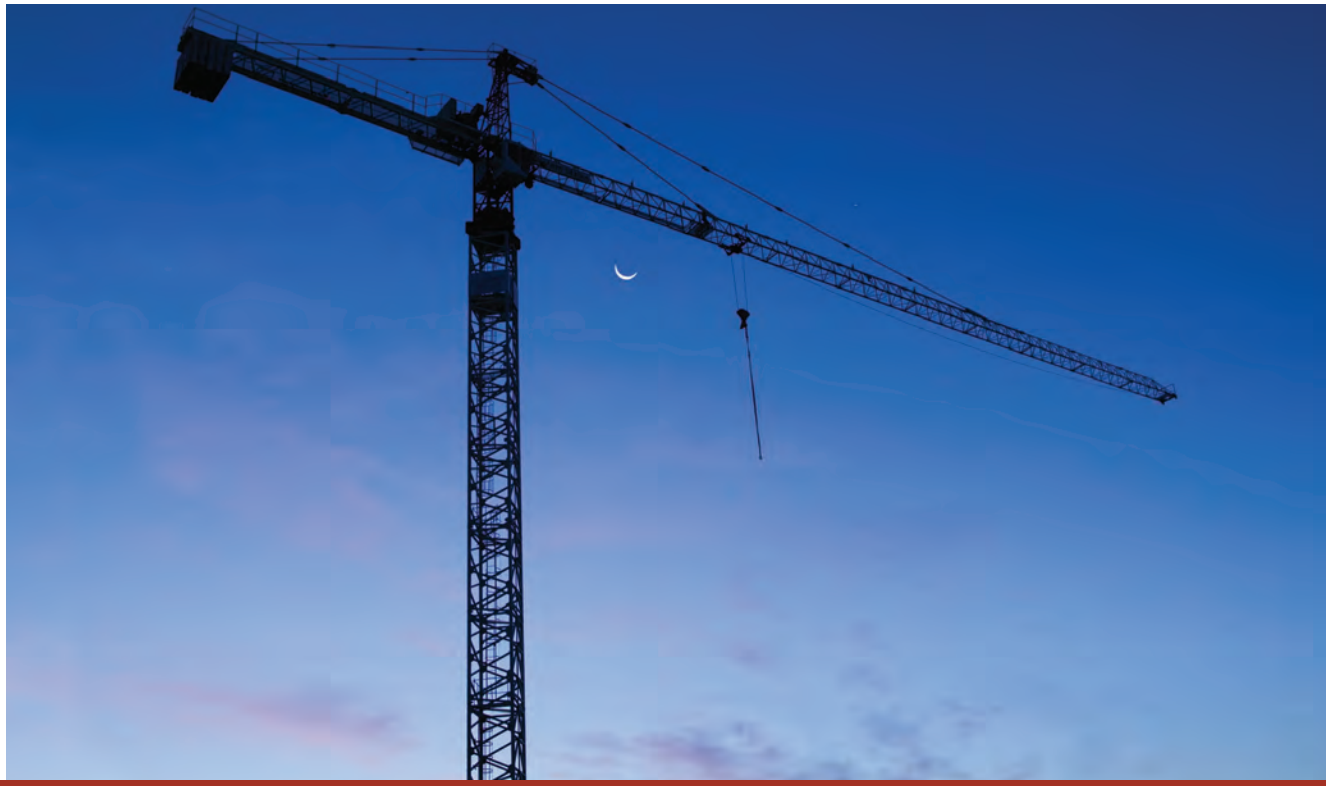
JANUARY 2013

INVESTMENT CLIMATE



Good Practices for Construction Regulation and Enforcement Reform

Guidelines for Reformers

Investment Climate | World Bank Group

IFC International Finance Corporation World Bank Group

THE WORLD BANK

MIGA Multilateral Investment Guarantee Agency World Bank Group

Good Practices for Construction Regulation and Enforcement Reform

Guidelines for Reformers

IFC International Finance Corporation World Bank Group
THE WORLD BANK
MIGA Multilateral Investment Guarantee Agency World Bank Group

January 2013
Available online at *www.wbginvestmentclimate.org*

About the Investment Climate Department of the World Bank Group
The Investment Climate Department of the World Bank Group helps governments implement reforms to improve their business environments and encourage and retain investment, thus fostering competitive markets, growth, and job creation. Funding is provided by the World Bank Group (IFC, MIGA, and the World Bank) and over 15 donor partners working through the multidonor FIAS platform.

Table of Contents

Acknowledgments

The preparation of this document was led by Thomas Moullier from the World Bank Group. The content was developed jointly with Andrei Mikhnev, with support from Alejandro Espinosa-Wang, World Bank, and Michael de Lint, Consultant. The team is indebted to the following individuals for their excellent suggestions and thoughtful contributions to the report and the country case studies.

World Bank Group
Ali Rahmat Miah
Damien Mourey
Ernesto Franco
Florentin Blanc
Frederic Bustelo
Fred Zake
Jaime Ortega
John Wille
Markus Kimani
Yehia Eldozdar

Norway
Olav Berge, *Special Adviser*
Norwegian Building Authority

New Zealand
Andrew Minturn, *Managing Director*
Qualtech International Limited

United Kingdom
David Smith, *President*
Consortium of European Building Control

Diane Marshall, *Group Head of Building Control*
National House-Building Council

Nigil Barr, *Managing Director,* BBS, Building Control Ltd.;
Chairman, Association of Consulting Approved Inspectors

Paul Wilkins, *Chief Executive Officer*
Butler and Young Group Ltd.

Paul Everall, CBE, *Chief Executive*
Local Authority Building Control

Tracey Cull, *Head of Building Control System Policy*
Department of Communities and Local Government

Austria
Dr. Rainer Mikulits
Österreichisches Institut für Bautechnik

France
Arnaud Dutheil, *Architect*
Annecy

Godlive Bonfanti, *Observatoire de la Qualité de la Construction*
Agence Qualité Construction

Henri Kaltembacher, *Ingénieur divisionnaire de l'industrie et des mines ; Chef du Bureau de la réglementation, du pilotage de l'inspection et des contrôles, et de la qualité*
Direction générale de la prévention des risques
Ministère de l'Écologie, du Développement durable et de l'Énergie

Laurent Peinaud, *Directeur Construction*
Groupe SOCOTEC

Emilie Mordacque, *Chef de projet réglementation technique dans les DOM, contrôle et évaluation de la qualité de la construction*
Ministère de l'Ecologie, du Développement durable, et de l'Énergie

Macedonia
Dusica Perisic, *Executive Director*
Association of the Units of Local Self-Government of the Republic of Macedonia

Martin Odzaklieski
Department for Administrative Oversight of Works

Mile Janakieski, *Minister*
Ministry of Transport and Communications, Republic of Macedonia

Jasna Petkovaska, LLB
Macedonian Chambers of Commerce

Sead Kocan, *President*
Construction Chamber of Commerce of Macedonia
Member of the Managing Board of MCC
Macedonian Chambers of Commerce

Nikola Velkovski, *President*
Economic Association of Macedonia

Marija Petroska, *Independent Consultant*
Economic Chamber of Macedonia

Cveta Badzakova, *Manager of Éngineering*
Badxak Engineering

Professor Milorad Javanovski, *Dean*
Civil Engineering
University of Cyril and Methodius

Professor Mishko Ralev, *Vice Dean*
School of Architecture and Design UACS
American College Skopje UACS

Colombia
Beatriz Uribe, *former CEO*
CAMACOL

Juan Martin Caicedo, *former Mayor*
Bogotá

Nohora Cortes, *former Urban Curator*

Singapore
Tan Kee Wee, *Deputy Director*
IT Department, Corporate Development — Building & Construction Authority

Irene Ho Tze Siang, *Senior Executive Engineer*
Building & Construction Authority

Doris Lim, *Technical Consultant*
Building & Construction Authority

Abbreviations

AI	Approved inspectors (United Kingdom)
BCA	Building consent authority (New Zealand)
BCA	Building and Construction Authority (formerly Building Control Department; Singapore)
BCC	Building Code Commission (Canada)
BCD	Building Control Department (currently the Building and Construction Authority; Singapore)
BIM	Building information modeling
CAD	Computer-aided design (software)
CC	Consequence class
CIC	Investment Climate Department (World Bank Group)
CIC	Construction Industry Council (United Kingdom)
CIC	CORENET Implementation Committee (Singapore)
CITC	Construction Industry IT Standards Committee
CCN	City Council of Nairobi
CORENET	Construction and Real Estate Network (Singapore)
CP	Construction permitting
CSS	Compliance cost savings
IBC	International Building Code
ICT	Information and communications technology
IDPC	Industry Development Projects Committee
IES	Institution of Engineers (Singapore)
IFC	International Finance Corporation
IT	Information technology
KCIP	Kenya Investment Climate Program
LABC	Local Authority Building Control(United Kingdom)
MOU	Memorandum of Understanding (Singapore)
NHBC	National House Building Council (United Kingdom)
NKB	Nordic Committee of Building Regulations
OIB	Österreichisches Institut für Bautechnik
PLU	Plan Local d'Urbanisme (France)
QP	Qualified professionals(Singapore)
SCT	Schéma de Cohérence Territoriale (France)
SIA	Singapore Institute of Architects
URA	Urban Redevelopment Authority (Singapore)
VCEC	Victorian Competition and Efficiency Commission (State of Victoria, Australia)

Introduction and Use of the Guidelines

Building occupants, home owners, and end users of public buildings typically represent a vast population that can potentially suffer from a significant information asymmetry with regard to the buildings they occupy. Asymmetry occurs when one party has both significantly more knowledge than the other and a position of advantage; familiar examples include the information advantage of a seller of used machinery over a buyer or of a mortgage company over an individual client. In construction, the degree of asymmetry is so high and so potentially harmful to the public that the only alternative is for governments to establish a good-practice regulatory framework with very robust and efficient compliance mechanisms.

The world has generally addressed this challenge with home-grown, diverse, inadequate, costly, and fragmented solutions, and the utilization of standardized good practices has been low. In fact, the most widespread and consistent response across the world to information asymmetry in construction has been to develop overly complex, opaque building checks and control procedures that end by defeating the purpose of ensuring a high degree of regulatory compliance with planning and building code requirements.

The enforcement of construction permits continues to be complex the world over, creating widespread opportunities for discretion and corruption and ultimately leading to high numbers of informal buildings. Efforts to streamline and improve transparency, on the other hand, are associated with improved levels of industry compliance with regulations on safety, water conservation, and energy efficiency. By making it simpler for industry practitioners to deal with building-control regulations, reforms in this area effectively strengthen the public good. In Ontario, Canada, following a wave of reforms in 2001, the provincial authorities recorded over eight years a 40 percent reduction of accidents within the industry and a decline of 15 percent in fires. Similar trends were observed in New Zealand on the rate of injuries for construction workers over the decade that followed reforms initiated there in 1995.

This paper is a first effort to gather comprehensive construction-regulation reform experiences, based on the Business Regulation Reform practice of the World Bank Group as well as 10 in-depth case studies, developed from a series of interviews with regulators and industry practitioners conducted between February and September 2012. The report's main objective is to provide policy makers, regulators, and the private sector, primarily in emerging economies and developing countries, with a tool for enforcing international best practice and for developing strategies for successful reforms in the area of construction regulation.

This paper is divided into the following eight chapters:

- *The Importance of Construction Regulation Reform.* The first chapter defines three overarching goals of construction-regulation reform and addresses why and how these efforts can pay off.
- *Reforms as Good Regulation, not Deregulation.* This chapter points out that deregulating is not the answer. Rather, as the chapter notes, the solution entails a robust effort that engages private building practitioners in enforcement policies, uses new technologies, and employs risk management techniques. Together these have been shown to deliver strong outcomes.
- *The Distribution and Focus of Construction Regulation Reform.* Leveraging eight years of data from the *Doing Business* reports, this chapter provides an overview of reforms initiated within the Doing Business scenario and the key regional trends.
- *Eight Key Policies Affecting Process Efficiency, Transparency, Regulatory Outcomes, and Costs.* This chapter provides a concise description of eight priority policy areas that should be addressed in a structured and results-oriented building-regulation reform effort addressing process, regulatory, and governance issues.
- *Initiating Reform and Addressing Typical Challenges.* Based on international experience, this chapter focuses on how to start reforms and covers issues including who should be involved in construction-regulation reform and how reform should be sequenced. In addition, it provides answers to 20 common questions and concerns relating to good practices associated with reform.
- *An Overview of Best Practices.* In line with the good practices described under the eight key policy areas, this chapter summarizes the best practices around four major issues, namely, building codes, procedures and transparency, payment of fees, and measures concerning stakeholder liability and accountability.
- *Performance Measures and Evaluation of Building Regulatory Systems.* This chapter defines guiding principles for leading the reform effort and includes a meaningful set of indicators and a framework for monitoring outcomes.
- *Ten Case Studies.* This chapter's 10 in-depth case studies round out the discussion. Based on extensive interviews carried out with building professionals in 2012, each covers the approach taken and main lessons learned for each country profiled.

Chapter 1. The Importance of Construction Regulation Reform

The enforcement of construction permits continues to be complex the world over, creating opportunities for widespread discretion and corruption and ultimately leading to high numbers of informal buildings. In most developing countries, the percentage of buildings that do not go through any form of controls at the design, construction, or postconstruction stages is generally estimated to be between 60 and 80 percent. Buildings that do not go through such controls are often assumed to have poor or no titling deeds and are referred to as "informal buildings;" in such cases, both the land plot and the building can be said to be informally owned.

High rates of building informality feed a vicious circle that starts with poor oversight mechanisms by several uncoordinated national and subnational institutions and yielding poor safety standards and high costs for the community. While the cost in human lives can be even more evident, local building authorities also lose the chance to generate revenues and deliver better services to the community.

A Positive, But Insufficient New Surge in Reform Efforts

Some reforms undertaken in the past decades[1] are now being rigorously measured, but little evidence indicates that they have paid off significantly or truly benefited communities. Past lessons learned point to two major limitations in the reforms of the past 10 years:

- *Reforms were usually initiated at a relatively modest scale, usually with a focus on process simplification.* More meaningful reform efforts involve innovative solutions. Beyond process reengineering, new partnerships with private-sector building practitioners should be forged to address the industry's increased technical complexity and the massive surge of construction expected in the next three decades.
- *Reforms have generally focused more on legal, technical, and regulatory aspects and less on implementing increased practitioner accountability and better standards of governance.* Moving forward, the strongest reforms will be those that promote transparency and effectively increase the accountability of construction regulators, enforcement agencies, and building practitioners.

The lessons of the past indicate that three main needs drive continued construction regulation reform: First, such reforms can play a large role in turning unrecognized assets into productive capital; second, they can help create a level playing field for businesses; and third, they can contribute to enforcing essential priorities in the community, including saving lives through increased safety and improved resource management.

[1] These reforms are summarized in chapter 2.

Untapped Resources of Capital for the Poor

A negative outcome associated with inefficient and corrupt construction-permit and inspection systems is the loss of a significant opportunity for existing or would-be entrepreneurs to mortgage their buildings to access development funds. Buildings cannot be mortgaged if they are not formally registered, and they cannot be registered if they remain off the radar screen of building-control enforcement agencies. In 2000, Hernando de Soto fleshed out the notion of "dead capital."[2] As he defined it, dead capital represents assets that cannot legally be used because they exist as a result of implicit, rather than legal infrastructures. He estimated that the existing stock of informal construction across the largest developing cities in the world is about $6.7 trillion.

With new reforms leading to functioning property laws, combined with more efficient and transparent building permitting and inspections, a portion of the stock of both illegal and new buildings could be converted into significant and more liquid capital. In turn, such improvements would lead to opportunities for large segments of the population to realize their assets and join the capital game.

A Level Playing Field for Businesses

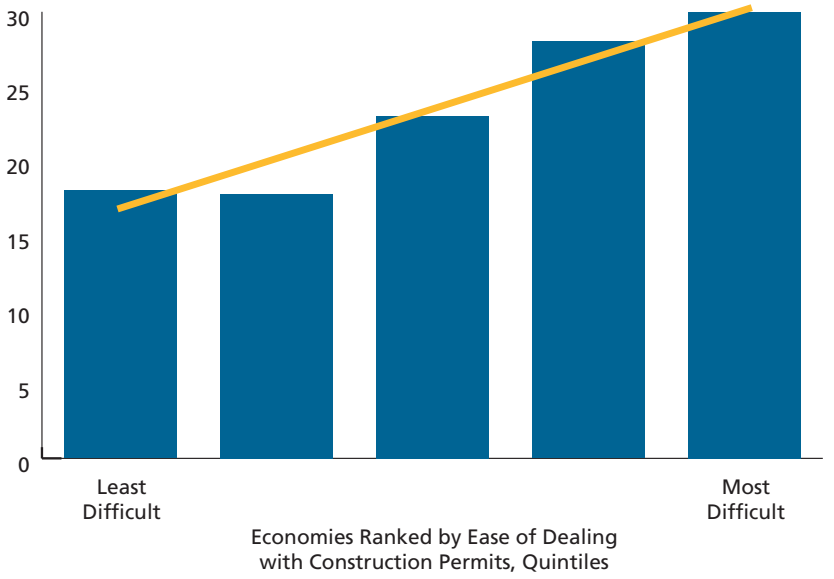
Construction also matters to businesses that operate in the formal sector. Complex processes and several licensing requirements from different authorities overlap at the design and completion stages of a building. Construction permits are therefore used to control several public goods, including ensuring minimum energy and water efficiency standards, protecting heritage sites, preventing construction close to airports, protecting the environment, and preventing harmful industries from locating close to residential areas. The inherent gate-keeper role of construction permits creates opportunities for exposure to multiple agencies, each enforcing its own ancillary regulations. Such regulations can embrace policy objectives going well beyond the enforcement of construction codes.

The World Bank Enterprise Survey Index provides a measure of the challenges end users face from this exposure to different bureaucracies. Globally, 23.2 percent of firms are expected to give gifts to get a construction permit. This rate is 67 percent in India and 91.6 percent in Cambodia. More complex building regulations are associated with higher perceptions of corruption. The World Bank Enterprise Survey Index found, as measured by the *Doing Business* report, that companies face more issues related to corruption in countries with difficult construction permit processes than in those with transparent processes.

[2] *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else* (New York: Basic Books, 2003).

Figure 1.1 Difficulty Dealing with Construction Permits and the Association with Corruption

Share of firms that expect to give gifts in exchange for construction permits (%)



Note: Relationships are significant ant the 1% level and remain significant when controlling for income per capita.
Source: Doing Business database, World Bank Enterprise Survey database.

Beyond the cost of corruption, the lack of transparency and consistency is by far the greatest challenge for small businesses with limited connections. In Algeria, surveys of private-sector firms show that 57 percent consider implementation of regulations to be always skewed in favor of the interests of elite, incumbent firms. This rate is 60 percent in Morocco and 66 percent in Lebanon.

Saving Human Lives

The most important justification for the use of building permits is that the private sector alone cannot ensure the highest manageable standards of building safety for the community. The role of building regulators is therefore to reduce negative externalities, such as the lack of adequate information sharing between the parties. A concrete example is the location of high-risk or hazardous industrial buildings in or near residential areas. A building permit, through the effective enforcement of zoning requirements, can prevent such situations. A well-functioning building control would address this potentially harmful information asymmetry between project owner and area residents.

While results from construction regulations continue to be poorly measured throughout the world, best-practice reforms are correlated with better outcomes. This is the case in Ontario, Canada, for example. In the years following its 2001 reforms, province authorities recorded a 40 percent reduction in accidents within the building industry and a decline of 15 percent in fires.

Multiple financial and social costs are associated with poor practices and faulty oversight mechanisms, the most extreme being the cost in human lives and injuries. Almost all incidents of serious earthquakes point to the disproportionate costs paid by the poor in developing

countries, where building informality is often predominant. A good case in point is Nigeria. A recent subnational *Doing Business* study found that the country's urbanites now account for 48.2 percent of the population, compared to 23.4 percent in 1975. Municipalities have struggled to absorb this large rural migration into the cities, creating urban chaos. Nigeria does not have an approved building code setting standards for construction. Many of the buildings erected do not have proper safety standards, and without clear rules, even the enforcement of basic parameters is a daunting task. As a result, building-related incidents have multiplied. According to the Nigerian Institute of Building, 84 structures collapsed in the last 20 years in Nigeria, claiming more than 400 lives.

Reforms Today, Not Tomorrow

Over the next 40 years, to keep pace with an exponential population growth expected to take the world's population from roughly 7 billion today to about 9 billion in 2050, more dwelling units will be built than at any time in Earth's history—one billion new dwelling units will be constructed by 2050. This growth will come with opportunities: the construction industry represents about 112 million jobs globally, and the industry is expected to grow by 70 percent, from $7.2 trillion last year to $12 trillion by 2020. It will also, however, come with massive challenges, including potential risks of bottlenecks with building and planning authorities unable to keep up with the growing volume and complexity of decisions.

Given the scale of the future challenge, building and planning authorities need to undertake bolder, in-depth reforms today. These reforms will entail a new vision of the role of regulators and will reflect the wide-ranging implications for the public sector on how best to collaborate with private building professionals and to leverage existing private-sector resources.

Box 1.1 Corruption Kills: The Case of Haiti

Haiti's construction permit system was a significant factor at the heart of the devastation created by the 7.0 magnitude earthquake that hit Port-au-Prince on January 12, 2010. The collapse of most of the housing infrastructure killed about 100,000 people and left 1.5 million people homeless. The Government of Haiti estimated that 250,000 residences and 30,000 commercial buildings collapsed.

This event was in no way isolated. The country had experienced several earthquakes, major floods, and storms in the past. Given the rapid pace of urbanization and the sprawl of shanty towns, the tolls from these events in terms of human life and physical damage have consistently increased, often in tragic proportions. Informal buildings accounted for over 90 percent of the building stock standing before the January 2010 earthquake.

Important institutional and historical factors contributed to the scale of the destruction, including the lack of enforcement of appropriate standards of construction. In turn, this led to inadequate construction practices, and the widespread development of informal buildings. With support from the World Bank, the challenge for Haiti is to build a new enforcement system for building permits that will enable quick and cost-effective methods of reconstruction without deterring stakeholders, investors, and building practitioners from embracing good practice.

Reshaping an effective regulatory system will also depend on introducing the country's first building code and creating solutions relevant to deeply rooted social and economic behaviors. The practice of "auto-construction" (or "self-construction"), for example, which typically refers to hiring a specialized construction worker to build a home, should not be banned, but it should be supervised and supported through preapproved design requirements and fast-track permitting and inspections systems for groups of residents in designated areas.

Source: The authors.

Chapter 2. Reforms as Good Regulation, Not Deregulation

A well-functioning building-control regulatory system is an important component of a modern society. Where building permitting and inspections work well, they enhance public safety, strengthen property rights, and contribute to the process of capital formation. Where they do not work well, and society fails to meet these objectives, costs and predatory rent-seeking will increase. Given the sensitive public good elements behind building regulations, reformers have sought to develop robust regulatory systems without the need for deregulation. Reforms in the United Kingdom in 1994, in Turkey after 1999, in New Zealand in the early 1990s, or in Egypt in 2007 all strategically focused on increasing industry compliance through modern, efficient oversight and governance mechanisms. But many stakeholders ask whether it is possible to achieve high levels of compliance in a field where technical requirements are continuously changing and becoming ever more complex. Over the past 15 years, reformers have used three major strategies to meet the challenge of improving compliance by shifting from traditional control-and-command regulations to better, more effective regulations:

- Seeking new collaboration with private-sector building professionals
- Focusing on risk-management
- Leveraging information and communications technology (ICT) solutions.

Effective Regulations Involve Government Partnering with the Private Sector

In countries undertaking reforms, regulators seek to reach better regulatory outcomes by leveraging private-sector resources and specialized skills. In doing so, they shift gradually away from strict public-enforcement practices toward practitioner-focused strategies through new forms of collaboration with private building professionals.

Macedonia and Georgia have recently managed a rapid shift away from an antiquated state-controlled and costly bureaucratic system of building permits and inspections and have forged new collaborations with private-sector building professionals. This new approach has paid off with increased efficiencies: Macedonia jumped 86 ranks in the indicator for dealing with construction permits in *Doing Business 2012*.[3]

No single path leads to successful collaboration, but all significant reform experiences worldwide have involved some delegation to private building professionals or some form of joint responsibility at various levels of the permitting process. In Colombia, for example, certified private engineers review and issue permits; in Austria, certified engineers undertake both the plan review and building-site inspections. Other countries, such as the United Kingdom, allow a private system of inspections to operate and compete with a network of public building authorities. Norway has gone one step further into this direction, creating a system

[3] In addition, *Doing Business 2013* highlights Macedonia as the economy most improved in this indicator during the past eight years.

of self-confirmation in which the project's designer is responsible for confirming compliance with building codes, a system that depends heavily on a robust slate of state-qualified private inspection agencies.[4]

In short, far from deregulating, best-practice countries have all introduced a measure of private-sector solutions at the different process stages, with the goal of increasing efficiency and providing consistent, high-quality services and delivery. The table below shows how reforms in Austria, Colombia, and New Zealand have led to increased cooperation with private-sector engineers at different stages of the permitting and inspection process.

Figure 2.1 Involving Private-Sector Building Professionals in the Regulatory Control Chain

	1 Review of Plans	2 Issuance of Permits	3 Site Inspections	4 Code Compliance Certificate
Austria	Certified Private Engineer	Municipality	Certified Private Engineer	(Notification)
Colombia	Certified Private Engineer	Certified Private Engineer	Municipality	Municipality
New Zealand	Accredited Agency (Public or Private Entity)	Accredited Agency (Public or Private Entity)	Accredited Agency (Public or Private Entity)	Accredited Agency (Public or Private Entity)

Source: The authors.

Effective Regulations Focus on Risks

Today, construction regulators pursuing a robust reform agenda consistently integrate an element of risk management into their building-controls systems to allocate resources better and to improve regulatory outcomes. From the viewpoint of construction regulators, *risk* is defined as the likelihood of noncompliance with building regulations and the potential extent of harm to building users. Risk determines the scope and intensity of controls carried out by building authorities.

Regulators usually pursue three main objectives when introducing modern risk-based management into construction permitting systems:

- *First, they seek opportunities for process streamlining* to make the most cost-effective use of scarce control resources.
- *Second, they try to shift the risk, responsibility, and liability back to the design sector,* where private designers and engineers have the skills, competencies, and experience to function without controls or with limited controls.

[4] Since reforms undertaken in 2010, Norway has introduced third-party review for critical building elements and therefore no longer relies entirely on self-confirmation. See the Norway case study in chapter 8 for more details.

- *Third, they attempt to improve a wide range of regulatory outcomes* from public health and safety to compliance with energy and water efficiency standards and urban planning requirements.

For many countries, a simple way to introduce risk management into their permitting systems has been to create one set of independent simplified procedures for low-risk building applications, typically buildings with one floor and a footprint up to 300 to 500 square meters.[5] In 2012, 86 countries had such fast-track procedures in place for small commercial buildings. But is this really sufficient?

Moving toward even more effective regulations, other reformers have gone an extra mile: they have introduced or improved a comprehensive classification of risks, defining different groups of building categories, typically by size, construction method, and final use. The classification determines the level of checks required for each building type and creates a transparent framework for enforcement agencies and building practitioners. A good case in point is the European standard EN 1990. This standard sets three "Consequence Classes" (CC) determined by the risks to users as well as social and economic consequences. Each category includes recommended interactions with building authorities.

Embedding risk management in effective regulations is universally endorsed, but the approach and instruments used to enforce it may vary significantly from one country to another. Three countries' experiences illustrate this emerging trend.

In New Zealand, the system relies on a project-specific risk assessment carried out by the building designer. A risk profile is matched by project-specific risk management strategies. National standards provide broad guidance on risk thresholds and categories. The designer (or builder) develops a risk profile and risk-management strategy for each individual project, and, subsequently, the local building authority (referred to as the Building Consent Authority) examines it for quality. Building authorities in New Zealand therefore carry out minimal traditional inspections. They do conduct some checks and audits, but usually these are selective, ex post, and focus on the technical verifications and the methodology applied by the builder. This system works well in mature economies where builders are well trained and supervised.

The United Kingdom has a more conservative approach than New Zealand's. It also established a classification of buildings based on risks, but unlike New Zealand, enforcement of risk management does not rely on the individual risk profile established by the building designer. Certain provisions of the building code automatically apply if the project exceeds certain risk thresholds in terms of size and complexity, and the control authorities, whether public or private, keep the upper hand and carry out more traditional checks and inspections.

Norway has a control system based on self-confirmation. There, authorities rely on the designers and builders to carry out their own verifications. Liability is closely linked to the qualifications of the building practitioners, verified through a centralized registration system of qualified building firms. In this system, inspections from local authorities are generally of low intensity and tend to focus on very large and complex projects.[6]

---

[5] Even these simple risk thresholds should always be defined in conjunction with other criteria, however, such as the type of activity planned for the building. A bar or restaurant with cooking facilities, for example, has potential fire risks that may warrant greater scrutiny at the permitting level, even though the building's footprint will be small.

[6] As indicated earlier, Norway reintroduced third-party review for critical building elements, thus distancing itself from a system based entirely on self-confirmation.

Box 2.1 Principles of Risk Categorization in the European EN 1990 Standard

Definition of *Consequences Classes*

Consequence Class	Description	Example of Buildings and Civil Engineering Works
CC3	High consequence for loss of human life; high consequences for economic, social, or environmental consequences	Grandstands, public buildings where consequences of failure are high (e.g., a concert hall)
CC2	Medium consequence for loss of human life; considerable economic, social, or environmental consequences	Residential and office buildings, public buildings where consequences of failure are medium (e.g., an office building)
CC1	Low consequence for loss of human life; small or negligible economic, social, or environmental consequences	Agricultural buildings people do not normally enter (e.g., storage buildings), greenhouses

Control at the Design Stage (Design Supervision Levels, or DSL)

Design Supervision Levels	Characteristics	Minimum recommended requirements for checking of calculations, drawings and specifications.
DSL3	Extended supervision	Third party checking: Checking performed by an organization different from that which prepared the design
DSL2	Normal supervision	Checking by different persons than those originally responsible and in accordance with the procedure of the organization
DSL1	Normal supervision	Self-checking: Checking performed by the person who has prepared the design

Controls by Inspectors (Inspection Levels or IL)

Inspection Levels	Characteristics	Requirements
IL3 Relating to RC3	Extended inspection	Third-party inspection
IL2 Relating to RC2	Normal inspection	Inspection in accordance with the procedures of the organization
IL1 Relating to RC1	Normal inspection	Self-inspection

Source: European Union.

Within these general parameters, countries looking to reform apply innovative risk-management policies, sometimes combining multiple best practices to create their own distinctive systems. Macedonia in 2011 created a risk system that combined a building classification with a building professionals' classification. Under these amendments, all buildings must be designed by a designer or contractor licensed in one of two categories: class A for buildings in category 1 and class B for buildings in category 2. All licenses, whether for design, construction, review, or construction supervision, reflect this classification: a person with a class A license cannot do work requiring a class B license. Not only has this approach been instrumental in Macedonia in reducing state controls and bureaucratic steps, it has increased transparency and promoted more consistent implementation of building regulations.

Other reforming countries decide to start small. They typically begin the journey at the subnational level, with new hands-on, cost-effective instruments to manage risk better. This was the case in Bolivia in 2012. The municipality of La Paz,[7] with support from the International Finance Corporation (IFC), developed a web-based risk-assessment tool. In the first phase of the reform, the tool will be used by building officials in La Paz. Subsequently, it will be made available to the design sector via the Internet and will help increase transparency regarding the documentation and inspections requirements for individual building projects.

[7] Three other municipalities have joined this reform effort: Santa Cruz, Cochabamba, and Montero.

Box 2.2 Initial Steps to Improve Transparency and Risk Management: The Municipality of La Paz, 2012

Prior to introducing its new risk-assessment tool, the municipality of La Paz had a computerized system to handle construction permits. Building officials, however, did not have a systematic, transparent approach to defining the documentation needed and the number and types of inspections required for different building applications. Private designers and building permit applicants consequently complained about inconsistent requirements, the lengthy process, and the random inspections conducted without any basis in building risk categorization.

IFC supported the municipality in simplifying the overall procedure for granting construction permits and developing two building classification tools with a scoring system capable of defining the precise documentation requirements and type of inspections needed. Starting in 2011, the team initiated discussions with private-sector engineers and building officials to create a user-friendly, computerized analytical tool focusing on a project's risks. This tool incorporated three risk dimensions:

- **The location of the building:** The tool made it easier to consider this factor. The city, built on steep hills subject to flash floods and landslides, had preexisting detailed topographic maps pointing to risk areas. Based on updated versions of these maps, the new matrix included five risk thresholds, from very low to very high, and each was assigned a specific score.
- **The characteristics of the land plot:** Following the same principle, similar thresholds were developed based on the gradient (or slope) of the land plot as well as the load-bearing capacity of the ground, typically measured in *deca Newton/cm2*.
- **The structure of the building:** For this dimension, risk thresholds were developed around three parameters: the number of floors, the number of underground floors, and the projected load.

An additional tool was developed to determine the risks associated with the building's end use, combining a standardized assessment of the expected capacity (or average anticipated number of end users) and the type of activity (e.g., restaurant, cinema, shopping center, etc.). Specific risk scores were assigned for each characteristic, and the likelihood of several activities taking place simultaneously was assessed.

While it is too early to assess the impact of this initiative, early indicators show the new instrument to be successful and functional, owing to close collaboration with private building professionals. Their early involvement in the process was key to reaching a consensus on risk factors and their respective proportional weight in the scoring system. This collaboration was facilitated by the prospect of increased transparency and more efficient interactions with city building officials. In the words of a project team member, the project was also widely accepted "because we focused on the actual risks patterns and risks history of the city while incorporating the valuable experience of European countries."

Source: The authors.

Effective Regulations Make Greater Use of ICT

Technology in the building industry has been continually improving over the past ten years, not only in terms of building products and construction technologies, but also in computerized and cutting-edge software design solutions. Effective control regulations can build on the increasingly sophisticated ICT tools now emerging in the construction sector.

The spectacular development of building information modeling (BIM) systems illustrates this point. BIM technologies can play a decisive role in improving building-code–compliance strategies with the potential to dramatically streamline the building design process, reducing time and costs. BIM provides a methodology to manage essential building design, construction, maintenance, and overall project data in digital format throughout the building life cycle. This digital information, in its simplest form, is a three-dimensional representation of the building and its hidden specification details.

In recent years, construction stakeholders, including regulators and academics, have contributed to innovative BIM software programs capable of automating verification of building-code compliance. These programs can be made available to all parties involved in the project, including designers, clients, and permitting agencies. The *DesignCheck* program is a case in point. Recently developed in Australia as a BIM providing an automated code-checking tool, designers can use it to check the code requirements at different stages of project design. Compliance consultants and building authorities can get automated data from architects, and basic checking and building-code compliance tests can be done rapidly and automatically, allowing those responsible for building compliance to focus on higher-risk features.

Not all countries pick up these more advanced ICT solutions in the short term. But by attending to emerging trends and following the lead of top reformers, such as Singapore, reformers everywhere can initiate reforms to create e-permitting systems and shared platforms at levels suited to their needs and circumstances.

Singapore's Promotion of ICT Innovation

Singapore's experience in the past decade[8] demonstrates how the challenge of implementing a successful IT platform for construction permits can depend more on promoting the exchange of standardized digital information between designers and building agencies and less on the technology itself.

CORENET, Singapore's e-permitting system, is one of today's leading world references for efficient, web-based platforms for processing construction permits.[9] Singapore focused on standardizing building plans on two-dimensional CAD layers to achieve a uniform language and seamless communications among the industry, design firms, and building agencies.[10]

An even more important factor behind Singapore's success story was the strong leadership role taken by the main Building and Construction Authority (BCA) in proactively training private building practitioners to use the compliance software tools and providing them with technical guidance. The BCA, along with staff from the software providers, set up help desks and call centers so software users could resolve technical difficulties. Another initiative set up e-kiosks to support end users and project developers.

---

[8] See the Singapore case study in chapter 8 on the introduction of the CORENET program in 2001.

[9] See the Singapore case study in chapter 8.

[10] Referred to in Singapore as the CP83 Standard.

ICT Tools in Building Controls

Despite the availability and high potential of ICT solutions, technology is still relatively slowly leveraged into building control procedures, as compared to other areas of regulations. In the past eight years, Doing Business recorded that 58 countries had revamped their business registration processes using ICT. In sharp contrast, during the past eight years only 11 countries introduced ICT into their construction permitting administration; 4 were in East Asia and the Pacific.[11] Until 2011, only one country in Sub-Saharan Africa had an operating online construction permitting system, and as of today, most countries in Central Asia do not have one.

This neglect of these ICT options slows down efforts to improve transparency and reduce processing times. More than ever, ICT elements must be introduced into the processes for generating building permits and triggering inspections. To be sustainable, these initiatives should be linked to larger regulatory reforms and eGovernment programs, and core staff should be trained to operate and maintain the systems.

Box 2.3 describes how Nairobi, Kenya, leveraged technology to improve efficiency and transparency in construction permit administration. An important element of the sustainability of the e-permitting reform is its incorporation into the city's comprehensive e-licensing system. EGovernment initiatives typically develop interoperability standards to facilitate data exchange between government agencies. Dedicated construction-permit platforms can tap into this new shared infrastructure, encompassing broadband connectivity within government, secure web hosting, secure user authentication, and e-payment gateways.

Why should these changes happen now?

- Building code requirements are becoming increasingly complex as additional policy objectives must be met, such as energy efficiency, water conservation, and accessibility for persons with disabilities. This makes it essential to introduce automated processes, to the benefit of both industry and regulators.
- Population growth in most developing countries is quickly outpacing the capacity of building agencies that continue to rely on labor-intensive manual processes. Cities like Nairobi have experienced 300 percent increases in construction-permit applications over just one year in 2010. Automated solutions can reduce the time required for plan review by up to 37 percent, according to the U.S. Center for Digital Government; they can also make it possible for resource-constrained governments to handle this increased throughput.
- Now, more than ever, developing countries need to contain the ever-swelling stocks of unregulated buildings in urban areas to mitigate short-term risks to safety and public health. Transparent and accessible information is a decisive factor in encouraging a level playing field and increased building formalization.

[11] To date, Brunei, Hong Kong, Singapore, and Taiwan have instituted these programs.

Box 2.3 Implementing Online Construction Permit Administration in Nairobi, Kenya: A First in the Eastern African Region

With support from IFC's Kenya Investment Climate Program (KICP), the City Council of Nairobi (CCN) decided in 2009 to improve construction-permit administration as part of a larger government-to-business reform agenda designed to improve substantially the delivery of government services.

Prior to the reform, all construction permit processing was done manually. The paper documents, including maps and plans, followed a convoluted process across multiple departments and external organizations. Approval times averaged around six months. The process was considered so complex and opaque that a corps of private expediters had evolved offering services to speed up the permitting process at a cost equivalent to 60 percent of the permit fee.

The reform project developed and implemented a web-based software application to automate plan review procedures and delivery of construction and occupancy certificates. A key innovation was a web- and SMS-based tracking and notification system, which keeps business people informed at all times of the status of their applications and any further information required from them. Prior to the enforcement of the automated solutions, CCN reengineered the issuance of construction permits, modernizing the workflow systems and physically reorganizing the office floor to mirror the steps of a simplified process.

The new automated process was launched in September 2011. As a result of the improvements and automation, approval times dropped from 6 months to the current performance standard of 30 days for approval of provisional building permit. Middlemen and expediters have had to find other sources of income. Construction permit applications have increased by 300 percent in 2009/2010 due to Nairobi's rapid growth, but the system allows CCN to keep pace with these rising volumes. These far-reaching reforms are expected to increase the level of formalization in building construction and to improve compliance with safety requirements mandated in city by-laws and national building codes.

The Development Control Department before the reform

The same department after the reform

Source: The authors.

Chapter 3. The Distribution and Focus of Construction Regulation Reform

This chapter provides an overview of key building regulation improvements across the world's main regions as revealed by the lens of the *Doing Business* reports published by the World Bank Group over the last eight years.[12] This powerful benchmark for construction regulations has some limitations: it cannot provide a comprehensive view of all best-practice elements of the building control environment, such as the quality of third-party checks on building plans or the clarity of liability mechanisms in the construction industry. The Doing Business indicator also cannot accurately measure procedure transparency or achievements in meeting safety and energy efficiency standards. But by focusing on building regulations as defined by a standardized case study and collecting information from 185 economies,[13] Doing Business does track some important building regulations improvements over time and can serve as a source of useful measures and a proxy for regulatory trends. Since 2005, the Doing Business recorded 146 regulatory improvements to ease the building-permit process worldwide. Eastern Europe and Central Asia, with 39, and Sub-Saharan Africa, with 33, are by far the regions with most reforms in this area. They are followed by Latin America and the Caribbean and by high-income OECD economies, both groups accounting for 22 reforms. East Asia and the Pacific recorded 14, the Middle East and Northern Africa recorded 13, and South Asia recorded 1 reform since 2005. Most of the 146 reforms focused on implementing administrative solutions to streamline the building-approval process, including creating or improving one-stop shops worldwide.

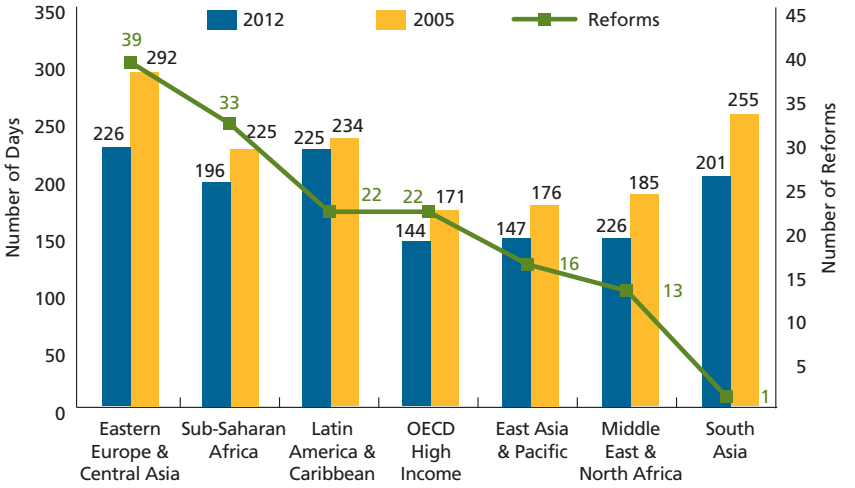
Other reforms were more extensive. In the past eight years, 18 economies implemented elements of risk-based approval systems, sometimes in a cost-effective, simple, and efficient way.[14] Sub-Saharan Africa, with 6 reforms in this area, was the leader, closely followed by Eastern Europe and Central Asia, with 5 reforms each. Another important set of reforms was the introduction or improvement of electronic platforms for building approvals: 13 reforms of this type were recorded, with East Asia and the Pacific and the Middle East and North Africa leading the way with 4 and 3 reforms, respectively.

[12] See www.doingbusiness.org.

[13] To measure the ease of dealing with construction permits, Doing Business records the procedures, time, and cost required for a small- to medium-size business to obtain all necessary approvals to build a simple commercial warehouse and connect it to water, sewerage, and a fixed telephone line.

[14] This is the case of Mali in 2009, which introduced a simplified procedure for commercial building applications involving no more than one floor of less than 200 square meters. Documentation requirements have been considerably streamlined for construction of buildings under this threshold.

Figure 3.1 Number of Days Needed to Obtain a Construction Permit and Number of Reforms by Region (2005–12)



Source: Doing Business.

Since 2005, Eastern Europe and Central Asia have shown the most improvements in building regulation. On average, the region has reduced the time needed to comply with building regulations and approvals by 88 days. Georgia was one of the strongest reformers, with a sustained effort to improve building-permitting procedures in 4 of the 8 years measured by the report. Most countries in the region have been very active as well in shedding antiquated regulations from the era of centrally planned economies. Ten reforms involved adopting new building laws. Croatia, Georgia, Kazakhstan, the Kyrgyz Republic, and the Russian Federation also made great efforts to introduce one-stop shops. These last 4 countries, along with Belarus, Macedonia, and Montenegro, also introduced risk-based approvals.

The Middle East and Northern Africa also made some improvements, with a sharp contrast between Gulf Cooperation Council countries,[15] which significantly reformed their building permit processes, and other countries in the region that implemented more modest improvements. On average, the region reduced the time to comply with building regulations and approvals by 41 days. The region has been moving toward introducing more online services and electronic platforms. The efficiency of systems has been improved, explaining some of the reduction in processing times for building-permit applications. This trend was essentially initiated by the Gulf Cooperation Council countries. In Bahrain, applicants download and submit application forms and building plans online and can track their applications and pay bills electronically. In the United Arab Emirates, electronic services have reduced both the time needed and the number of procedures.

Other countries have tried to follow the lead of the Gulf countries. Morocco implemented a one-stop–shop approval system, but with mixed results and no visible impact as yet. Egypt and Saudi Arabia have also been consistent reformers, streamlining construction procedures, reducing fees, and introducing new building regulations. But concern remains in Egypt about actual implementation of the reforms. Consistent enforcement is indeed an issue across the region.

[15] The United Arab Emirates, Bahrain, Saudi Arabia, and Qatar.

Sub-Saharan Africa experienced an average reduction of 27 days for permit approval since 2005. The creation of a one-stop shop in Burkina Faso, risk-based approvals in Kenya, fee reductions in Liberia, and streamlined construction procedures in Rwanda and the Democratic Republic of Congo were the main reform initiatives in the region. Although much room remains for improvement, the region is clearly making progress.

OECD high-income economies have reduced processing time for building-related approvals by 24 days since 2005. It is important to point out that reforms in this group are among the most advanced and forward looking. The United Kingdom and the Czech Republic introduced private inspections, and countries such as Canada, Korea, and Portugal updated their building codes to keep pace with technological advances in the construction sector.

East Asia and the Pacific nations have made some progress in building permitting, reducing the average time required by 23 days since 2005, and authorities in these economies included several approvals, from utilities to road permits, in their electronic platforms and systems. Brunei, Taiwan, and Hong Kong have implemented successful one-stop shops, and Malaysia is currently finishing its implementation of a similar system. Tonga and Vietnam have also made significant reforms. Tonga drafted, approved, and implemented a new building code, eliminating some overlapping procedures, while Vietnam reduced several fees and statutory time limits for construction approvals. China just completed the first stage of its new fast-track approval process for building permits in Shanghai.

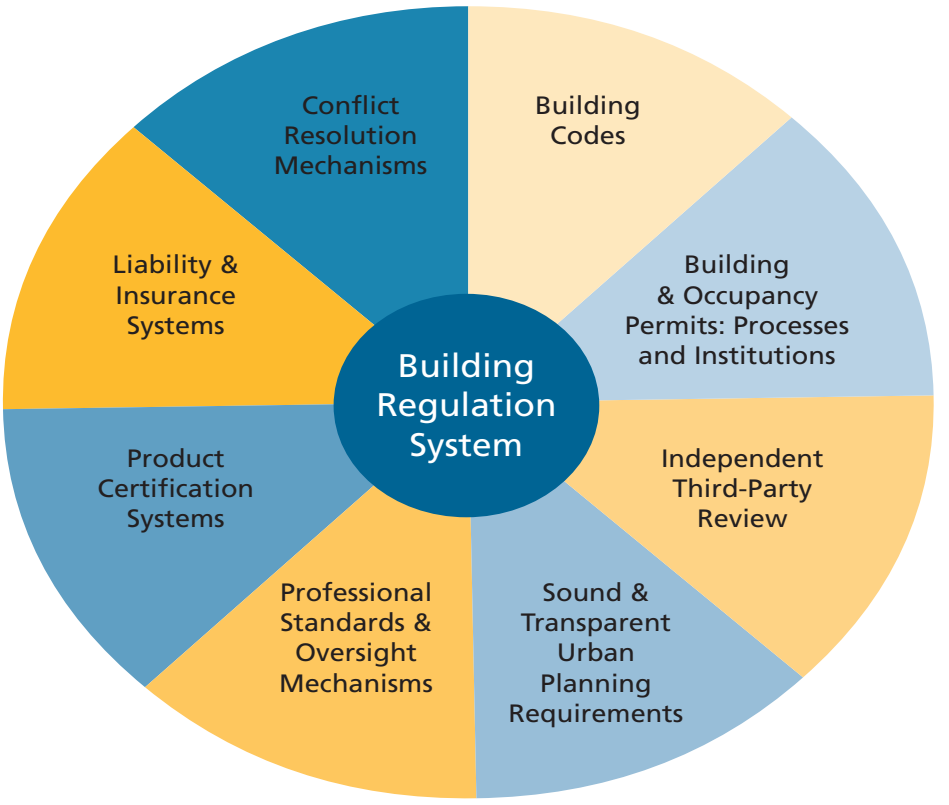
Latin America and the Caribbean experienced a drop of 10 days in the building-permitting process from 2005 to 2012. Colombia, with the adoption over the last three years of risked-based approvals laws and the introduction of online tools to verify documents, is the region's strongest reformer. Other consistently reforming economies are Costa Rica, Guatemala, Honduras, Panama, and Paraguay, wherenew zoning laws and electronic platforms for approvals have been adopted.

Since 2005, South Asia has seen only one building regulation reform. Indian authorities implemented stricter time limits for preconstruction approvals.

Chapter 4. Eight Key Policies Affecting Process Efficiency, Transparency, Regulatory Outcomes, and Costs

Governments that embrace construction permit and building inspection reform must address eight major policy areas to achieve a sound and functioning building control process. Working in all eight policy areas simultaneously is not always necessary, but all of the areas, identified in Figure 4.1, affect building-code compliance, permitting authorities' transaction costs, private building professionals and end users, and, most importantly, regulatory outcomes.

Figure 4.1 Eight Critical Elements of a Building Regulatory Framework



Source: The authors.

This publication focuses on the essential practices of building controls, rather than on the larger political economy of reforms, so this chapter leaves aside issues such as communications and building awareness, larger incentive instruments, or human resource and institutional capacity.[16] Following this approach, this chapter defines each of the key policy elements, explains why they are important, and, in some cases, briefly describes reform trends and good practices.

Building Codes

Definition and Scope

Building codes provide a set of uniform building regulations and standards for acceptable health and safety conditions in buildings. Usually compliance with building codes is mandatory for all construction practitioners. Specific building energy efficiency codes are typically developed in addition to the main code system, ensuring that new buildings realize their large potential for energy and water efficiency at the design stage.

Why Codes Are Important

All building professionals, developers, and investors should have a single point of reference that establishes common and transparent standards for public health, safety, fire protection, structural efficiency, and environmental integrity. Without a building code, significant disconnects can arise between the design professionals and regulators. In the absence of common references, builders do not know what to expect, and the permitting process cannot be straightforward and transparent. Where a national or subnational jurisdiction fails to present a comprehensive set of building standards and requirements in the form of a uniform building code, development of an efficient risk-based regulatory system can be impeded. Countries with no building codes at all expose themselves to higher risks of exposure to substandard construction and massive loss of human lives and infrastructure. This was the case in Haiti in January 2010. (See also boxes 4.1 and 4.2.)

Major Trends in Reforming Countries

- *Building codes are leveraged as key risk management tools.* Good-practice codes impose different technical requirements for buildings depending on structural characteristics and occupancy and geographic and geologic constraints. The process of categorizing building is called *classification*, and its purpose is to determine the degree and intensity of regulatory controls necessary according to the class of risk into which the building falls.

[16] For a review and analysis of these aspects, visit https://www.wbginvestmentclimate.org.

Box 4.1 The National Building Code of Canada: A Typical Building Occupancy Classification

Examples of major occupancy classifications for Canadian buildings include the following:

- Assembly occupancies, including lecture halls, auditoria, restaurants, and libraries
- Detention facilities, including prisons and psychiatric hospitals
- Care facilities, including homes for the aged, hospitals, and nursing homes
- Residential occupancies, including houses, apartments, hotels, and residential schools
- Office occupancies, including office buildings, banks, and medical offices.
- Mercantile occupancies, including department stores, shops, markets, and supermarkets
- High-hazard industrial occupancies, such as flammable chemical manufacturing plants
- Medium-hazard industrial occupancies, including laboratories and service stations
- Low-hazard industrial occupancies, including warehouses, storage rooms, and creameries.

Within these occupancy classes, risks vary depending on the size of the building. In some jurisdictions, buildings over 3 stories and 600 square meters in building area are generally subject to more robust requirements. Still more robust requirements often apply to buildings over about 18 to 20 meters in height, higher than the reach of most fire ladders. A further escalation of requirements applies to buildings considered "post-disaster" buildings, such as hospitals, police stations, and power plants.

Source: The authors.

- *Performance-based building codes are replacing older prescriptive codes.* To facilitate innovation, building codes in many jurisdictions have become less prescriptive and more outcome-oriented. Prescriptive codes describe one way to achieve a regulatory outcome; for example, a prescriptive code for wood-frame construction specifies that a load-bearing wood-frame wall requires wood supporting members of a specific size placed with specific maximum spacing. Based on the same example, a performance- or objective-based code would specify that the building structure must support a certain live load and wind and seismic loads. The designer must then demonstrate compliance with the performance requirements. These codes encourage a more mature discussion between the industry and regulators and increase efficiencies in carrying out checks and inspections.

Box 4.2 Macedonia: What Can Happen in the Absence of a Uniform Building Code

Despite Macedonia's significant reforms over the past three years, industry practitioners point to the continuing lack of a uniform building code as a source of significant inefficiencies for building designers and contractors. Without the common point of reference such codes provide, different parties use different standards: the architect may base the overall building design on one code or standard, while the engineer designing the fire-safety system may use a different code. The result can be design conflicts resulting in delays and additional costs.

Moreover, instituting a risk-based regulatory system becomes more difficult and arbitrary in the absence of a code establishing standards based on risk categories. Currently, Macedonia is in the process of adopting the Eurocode to remedy this problem.

Source: WB Group interviews, May 2012.

Building and Occupancy Permits: Processes and Institutions

Definition and Scope

The building permitting process refers to the process of obtaining a building permit and associated requirements. *The building permit authority* usually acts as a gatekeeper, ensuring that permits are issued only when applicants comply with other "applicable laws," including prior clearance requirements such as land-use planning regulations; regulations concerning airports, farmland, and heritage sites; and environmental regulations.

As building codes become more complex, with multiple objectives supported by new performance- or objective-based codes, pressure from central governments and the construction industry grows for increased service levels. Local building authorities are asked to provide fast, high-quality service in an increasingly challenging environment. Autonomous municipalities may at the same time impose their own conflicting pressures as they strive to reinforce their status as "mature orders of government." These two drives—for increased levels of fast, high-quality service and for increased municipal autonomy—intensify the already heavy demands on permitting authorities. To resolve this conflict, some jurisdictions are moving toward greater outsourcing or private-sector delivery. In other cases, municipalities have joined forces or rely on support from the state authority.

Why the Permitting Processes Are Important

Delays in obtaining a building permit, particularly with planning approvals, can create adverse effects on a building project and can lead developers to abandon otherwise viable investments. In many jurisdictions across the world, builders may choose to bribe building officials for a "fast-track" permit or may resort to building informally. These practices can lead to poor compliance with standards and increased risks for the community.

The lack of transparency and accountability from building authorities can contribute to market distortions and additional transaction costs, especially when these authorities are under-equipped, under-resourced, and not guided by basic standards of service delivery. Lengthy or obscure permitting processes can have a negative effect on developers in another way: they may hamper innovative projects that are more likely than traditional ones to face uncertainties and delays.

Major Trends in Reforming Countries

- *Reform of building-permit processes consistently involves efforts to streamline and automate parts of the process.* In Alexandria, Egypt, for example, following a process reengineering effort carried out in 2007–8 at the subnational level, the number of construction permitting procedures and the time required to complete them dropped by 30 percent. More recently, with support from IFC, Kenya launched the first online construction-permit system in Sub-Saharan Africa outside of South Africa. As part of a comprehensive approach, the City Council of Nairobi initially streamlined processes in light of international good practice and established a one-stop shop, and in 2011 the project worked with a local software provider to develop a web platform and automate the e-construction permit system. As a result of this initiative the permit process was reduced from 6 months to 30 days. Beyond time and cost savings, end users, including architects and construction engineers, pointed to significant improvements in transparency and greater consistency in the local authority's decisions.

- *Increasingly, building-control activities are outsourced to private building professionals.* With building codes becoming more complex and with sustained increases in construction across the world, the trend toward sharing the work-load for regulatory control functions, and hence leveraging expertise where it really sits, has led to growing use of the private sector. This trend has taken hold not only in traditional market economies but also, to a lesser degree, in transitional economies such as Macedonia, the Czech Republic, or more recently Kazakhstan. The turn to private-sector expertise is visible as well in middle-income countries, as illustrated by the emergence of a large contingent of private third-party reviewers (examined in the next chapter). A more systematic use of private building professionals for permits and inspections has helped remove bottlenecks associated with resource-constrained public building authorities.
- *Innovative solutions are developed to make building-control authorities more accountable.* In some countries, municipalities are recognized as being fully autonomous with respect to most but not all functions. As outlined in greater detail in the case study in chapter 8, New Zealand's Building Act of 2004 introduced some major changes to local building controls. One of the most important of these reforms was the requirement that municipal permitting bodies be accredited by the state. In New Zealand's accreditation scheme, the state sets outcome- and performance-based standards, measured with a series of indicators. As a result of the accreditation program, 85 local authorities have formed 9 cluster groups sharing resources, and 8 Auckland local authorities have amalgamated into one "super city" with one building-control unit, with 650 staff, for the entire region. In many countries, building-control responsibilities are assigned rather than delegated to the municipality. Once assigned, the assigning authority cannot easily recover the power, but where power is delegated, as in New Zealand, the state can set accreditation standards and recover the authority if necessary.

Independent Third-Party Review

Definition and Scope

Third-party review of building design and construction refers to review of building plans and inspections during and after construction conducted by a technical expert independent of the building designer, contractor, or owner. The independent expert is a third party, with the owner considered the first party and the designer and contractor considered the second party. In some jurisdictions, municipal building departments undertake the review and inspection tasks, but they sometimes lack the resources to do so. In other jurisdictions, this function is undertaken by private-sector firms or individuals. Third-party or independent review provides a "second or fresh set of eyes" to examine critical, high-risk aspects of building plans and construction and can help ensure that the proposed designs and construction are technically sound and in compliance with building codes and standards. Given their importance, third-party experts clearly must be competent, knowledgeable about technical regulations, professionally supervised, and selected in a transparent and professional manner. (See box 4.3.)

Why Independent Third-Party Review Is Important

To a very large degree, a functioning third-party review mechanism determines the ability of a construction permitting system to produce robust regulatory outcomes. No reforms should be undertaken at the cost of weakening this crucially important element of building control. This function is important for four reasons:

- *Buildings have major impact on public safety,* including that of persons both within and near the building.
- *Buildings are complex,* and mistakes in building design and construction are highly possible and often likely.
- *Building defects can be very expensive to repair* once the building is complete. This factor can add considerable uncertainty for investors. Design adjustments or repairs are much less expensive during the design or construction process.
- *Some project stakeholders can be pressured to cut corners, thus reducing public safety*. Building owners or designers, subject to cost and other pressures, may have a higher tolerance for risk than would the building occupants or the public. A third-party control provides the check and balance needed to minimize such risks.

Major Trends in Reforming Countries

Third-party review can be accomplished in several ways, ranging from review by government inspectors, usually from municipal authorities, to private-sector review. The range of options for independent third party, technical review includes the following:

- *Third-party review by government inspectors from the local permitting authority:* design review and/or construction inspections done directly by municipal inspectors.
- *Third-party review by consultants or private inspectors retained by permitting authorities:* local authorities may rely on expert private inspectors to advise or sign off on the technical review.
- *Accredited third-party inspection agencies retained directly by project developer owner:* government-approved inspection agencies review designs and building construction for the owner.
- *Peer review of building design and construction by another professional engineer:* owners engage another licensed engineer not involved in design or construction to review the design and/or construction.
- *Third-party review provided or engaged by insurer/warranty provider:* in jurisdictions where insurance or warranty providers have a large role, they may arrange the technical review as well.

Jurisdictions sometimes combine several of these potential third-party technical review modalities.

Box 4.3 The United Kingdom's Approach to Third-Party Review

The United Kingdom has enthusiastically embraced a system of competitive private and public-sector third-party reviews. U.K. third-party technical reviews focus mainly on inspections during construction, the assumption being that developers may not follow the plans and that what matter is the soundness of the actual construction. As noted in the U.K. case study in chapter 8, building inspections in the United Kingdom can be performed by approved private-inspection bodies as well as by public building-control authorities. Developers can choose between public and private-sector inspection bodies when arranging for third-party reviews. This competitive system has resulted in a more service- or client-oriented attitude among local authorities and has helped to streamline service.

Source: The authors.

Sound and Transparent Urban Planning Requirements

Definition and Scope

The requirement for obtaining a building permit entails compliance with *applicable law,* a term referring to regulations governing where and under what conditions something can be built. Applicable laws may also be referred to as *prior clearances,* since building authorities will require prior clearances from the agencies overseeing adherence to the law in question. In some countries, verifying compliance with zoning and other land-use planning regulations causes the most concern. Developers quite reasonably expect that the review of building proposals, particularly those for larger and more complex building projects not in conformance with existing zoning or land-use policies, will take time, because such projects often require research studies on infrastructure, traffic, and environmental and other impacts. One or more public consultations may also be required. Where a proposed project appears consistent with an area's existing development, land-use approval processes should be relatively simple and straightforward. This is not often the case in most jurisdictions, however. (See box 4.4.)

Box 4.4 Trinidad and Tobago: Out-of-Date Zoning Plans Add Costs and Distort Competition

The Republic of Trinidad and Tobago is undertaking building regulatory-system reforms, including updating its National Physical Development Plan and local land-use plans. The building industry has expressed concern that land-use plans and policies across Trinidad and Tobago, including the capital Port of Spain, were out of date. In addition, infrastructure plans, including documents providing information on the capacity of water and sewer infrastructure, were not readily available for developers. Many development proposals now go to an appeal body because the out-of-date land-use plans do not provide adequate guidance for planning review. The appeal body uses its own set of policies and criteria for evaluating development applications, which do not comply with the official, outdated land-use plans and policies. Another concern was the lack of a level playing field for all developers, with some "insiders" having access to planning and infrastructure information that others did not.

The government in Trinidad and Tobago is undertaking a major effort to update the land-use plans and policies, and it is examining ways to enhance transparency. In addition to bringing all land-use plans up to date, the authorities intend to put all planning and infrastructure information online. Officials in Trinidad and Tobago recognize that a high level of transparency improves the efficiency of all parties, including both the developers and the regulators.

Source: The authors.

Why Sound and Transparent Urban Planning Requirements Are Important

Urban-planning approval issues arise often in countries, formerly part of the Soviet Union, now transitioning from state-controlled to market-based economies. In some of these countries, planning information is seriously outdated; it may even be treated as secret information and not made available to the public. Access to up-to-date land-use planning information is crucial for developers because building projects involve large up-front investments of time and money for feasibility studies and preliminary plans.

Moscow provides an example of how the lack of a sufficiently developed and mature master plan can create significant upstream obstacles to updating detailed zoning requirements and making them transparent to end users. Heavy and cumbersome up-front procedures present a particular problem for builders in such transitioning economies. Without an updated master plan and detailed corresponding zoning maps, a builder acquiring a plot must be allocated land by the state (or the city), after which the land is transferred into the land cadaster. Such structures require clearance from all agencies, which must review the new property to offset the lack of prescriptive information found in the detailed master plans and zoning maps of best-practice jurisdictions.

Major Trends in Reforming Countries

The most notable and successful reforms focus on introducing ICT to provide users and certified professionals with access to planning information. In Vienna, land-use plans, including zoning and infrastructure information as well as official plans for the future growth and development policies of the city, are all available online. The zoning map, for example, allows the user to zoom in on particular areas of the city to determine the current zoning and relevant land-use policies. Legal reforms have consistently created a predetermined "right to build" for projects complying with planning and zoning requirements. This is the case of France, as well, as described in box 4.5.

Box 4.5 France: A Participatory and Transparent Zoning System

Similar to other countries in Europe, France has a standard two-tier mechanism for establishing zoning requirements:

- First, a regional Master Plan, or *Schéma de Cohérence Territoriale* (SCT) is typically developed for a period of about 10 to 15 years, usually by a large group of municipalities under a dedicated association chaired by an elected mayor from one of the group's municipalities. The SCT results from a codified, thorough consultation process involving regional stakeholders and the concerned municipalities.
- Second, a municipal Zoning Plan, or *Plan Local d'Urbanisme* (PLU), is updated and digitized, on average, every 5 years. The PLU must be entirely consistent with the SCT in all aspects. Any individual or firm (i.e., the project developer) can have a PLU (or certain aspects of a PLU) annulled by a court, if it is found to be inconsistent with the SCT. A PLU is a detailed document that includes graphic explanations, maps, and the coefficient of land use. It also includes detailed information about utility networks and regulations relevant to the mapped area (e.g., the environment, the national heritage, etc.).

Both the SCT and the PLU are developed by private specialized firms, which are selected as a result of a public tendering process. Although local elected authorities are fully empowered in the process, the central government can establish key requirements at the start (for example, preservation of agricultural zones, flood prevention, etc.) and will monitor the final compliance of the PLU with specialized controllers. This early notification of requirements is referred to as *porter à connaissance*. A PLU creates a "right to build" for any building applicant, as long as the proposed project is located in one area opened for development. Municipalities have the obligation to allow access of their PLUs to all citizens, via a website or at the municipality office. Areas within the outreach of utility companies and that have adequate infrastructure to allow immediate physical connections are marked with a specific code (1AU). Building projects developed in these areas are not subject to any form of preliminary approval or notification requirements.

(continued on next page)

Box 8.1 *(continued)*

The French system illustrates a widespread European practice of not requiring preliminary zoning permits, on the following basis:

- A predetermined right to build exists in areas for which zoning plans allow such building.
- Applicants for construction permits can access all relevant zoning information with no restrictions, at a minimal cost, and can determine, ex ante, if the project meets zoning conditions.

With the notable exception of the United Kingdom, most European countries, such as Austria and Germany, have assigned their building authorities the task, integrated into review of the building permit application, of verifying that a project complies with zoning requirements.

Source: The authors.

Professional Standards and Oversight Mechanisms

Definition and Scope

Building design and construction rely heavily on the expertise of designers and contractors, especially for more complex, higher-risk buildings where the design follows performance-based rather than prescriptive codes. Where a heavy reliance is made on professional designers, they must be qualified in building design, building science, and relevant building codes and standards. Similarly, where a heavy reliance is made on the building contractor, the contractor must be able to read plans and specifications and to understand construction materials and methods.

Why Professional Standards and Oversight Mechanisms Are Important

In the past 10 to 15 years, building controls in reforming countries have been shifting from old-fashioned public-enforcement policies (centered on public building authorities) toward strategies that rely on private practitioners for enforcement. This is a positive trend because it reduces delays and bottlenecks with local building authorities. The result, however, is greater reliance on the expertise of private-sector designers and engineers. The licensing of professionals involved in the building process is therefore a significant part of most building regulatory systems, and a robust system of qualification and licensing for those professionals is crucially important to ensure a higher degree of building code compliance.

Major Trends in Reforming Countries

The very different practices in the United Kingdom and in Austria respond to the needs and constraints prevailing in each country. Both provide a model illustrating trends observed in other reforming countries.

In the U.K. approach, enforcement strategies relying on private practitioners allow individual persons or legal entities to perform independent building-controls. These private building professionals are called *approved inspectors,* and they perform building controls in place of the state or municipal building authority.[17] The building permit can be issued by the private

[17] Applicants can choose to apply for a building permit either at the building authority or with an approved inspector.

approved inspector. The United Kingdom developed and set by law the qualification criteria for approved inspectors. Approval of private inspectors is carried out by a government body, the Construction Industry Council (CIC).[18]

In the model followed in both Germany and Austria (further described in box 4.6), private qualified individuals or engineering firms can be commissioned by the local municipal building authority to do checks and inspections. The construction permit is formally issued by the local building authority, based on the reports of the private expert. Both countries have robust entry licensing systems for designers and builders.

Box 4.6 Austria and Germany: Setting Up Robust Professional Qualification Requirements to Support a Modern Practitioner-Based Enforcement Strategy

Austria has two relevant professional groups for professional qualification requirements:

- The *Baumeister* (master builder) must successfully pass both an apprenticeship and a master craftsman's examination or must complete secondary education, ending with a high school certificate. In both cases, some years of specific professional experience plus an official examination by a special commission are also required.
- The *Architekt/Zivilingenieur* goes through a post-secondary technical education followed by at least three years of professional experience and passage of an official examination organized by a special commission composed of public administration officials and representatives of the Chamber of Architects and Engineers.

Local authorities typically have only limited or light additional requirements when hiring private experts because the candidate's engineering skills will already have been adequately and thoroughly examined through the licensing process.

Source: The authors.

Both the U.K. and the German and Austrian models can inspire improvements to existing building control systems elsewhere. Neither approach is considered superior to the other, as both fit well the structures and needs of the respective nation's industry. It is worth noting that the system of qualification and the degree of entry level expertise required for professionals reflects two systems with practical consequences for building-permitting procedures:

- The Austrian and German system depends on high entry standards for the designer and builder, with a consequently lower intensity of inspections in individual buildings.
- The U.K. model minimizes barriers to entry and therefore places a larger focus on third-party inspection of individual buildings.

In the words of one European regulator, "The Austrian system is builder- rather building-focused, with the U.K. implementing the reversed approach."[19]

[18] See www.cic.org.uk.

[19] Rainer Mikulits, Österreichisches Institut für Bautechnik (OIB), interview with the authors, May 2012.

Product Certification Systems

Definition and Scope

Building codes are regulations that set out minimum requirements for building design. Out of necessity they increasingly rely on product certification systems to address more specific requirements for various building products, including building materials, equipment, and systems. Product certification systems are often linked with accredited standards associations, which develop standards and approve products. Building products and innovative building designs can also be approved or certified by bodies established and recognized by regulatory authorities to review innovative building materials, systems, equipment, and designs.

It is important that the regulatory system accommodate building innovation, and therefore building regulatory systems must have infrastructure to support certification of products, systems, and equipment, including new and innovative products. But building regulatory systems exist within an economic and political context that requires that they permit and facilitate the use of either or both of traditional and innovative methods and materials.

Why Product Certification Systems Are Important

A country with a functioning product certification system can ensure smooth incorporation of new designs and techniques and can respond to innovations in building designs and systems suited to the market and consumer demands that comply with, or exceed, public-policy objectives for buildings. New or innovative building designs, systems, materials, and equipment may also prove less costly and better performing than more traditional approaches.

Liability and Insurance Systems

Definition and Scope

Liability and insurance regimes are crucial in the construction sector because they ensure the accountability of practitioners and enforcement agencies themselves. Available insurance systems also contribute to a restitution mechanism for an aggrieved party or plaintiff. Unfortunately, in poor or middle-income countries such insurance systems are not always well developed.

Generally, building code compliance and building safety are a shared responsibility among the designer, builder, and permitting authority. Liability for negligent or defective work, depending on the nature of the liability regime, is usually restricted in time to an ultimate limitation period. In practice, liability regimes can be complex, fragmented in terms of legislation, poorly aligned with insurance coverage, and often poorly understood. These factors create delays and confusion and consistently increase costs for regulators and the industry.

Why Liability and Insurance Systems Are Important

Promoting efficient, fair, and transparent liability systems with reasonably priced insurance mechanisms is important in helping to prevent building officials or enforcement agencies from stalling the issuance of permits. The simple fear of legal uncertainty can create significant delays and impede the capacity of enforcement agencies to make quick and sound decisions. This was

the case for local building authorities in Ontario before the 2001 reform there.[20] With the gradual shift from old-fashioned public enforcement toward practitioner-based enforcement of building regulations, sound liability and insurance policies encourage more relevant and transparent agreements that reflect the new roles and attributions between regulators and the industry.

Major Trends in Reforming Countries

As illustrated by reforms in the Czech Republic, Kazakhstan, and Colombia, middle-income countries seek to develop or revamp their liability regimes by promoting proportional liability and consistent insurance coverage. Two different approaches are usually considered in liability reforms:

- *Joint and several liability, or the 1 percent rule.* In some common-law regimes, practitioner liability is affected by the principle of joint and several liability, or the so-called 1 percent rule. Under this rule, even a party found only 1 percent liable can pay the entire amount of the settlement. The courts sometimes find a "deep pocket" defendant, such as a municipality, 1 percent liable to ensure that the plaintiff is compensated. Under the joint and several principle, the party found 1 percent liable can then try to recover their share of the settlement from the more liable parties, for example, the designer or contractor. Often those parties have insufficient insurance, however. A municipal building-control authority doing design review and inspections, operating under a joint and several liability regime, usually experiences a degree of *liability chill,* resulting in some reluctance to take avoidable risks, such as approving innovative or alternative design solutions.
- *Proportional liability.* Arrangements in which parties pay only in proportion to their share of fault are generally considered more feasible for policy makers when all key players have adequate insurance coverage. This is the approach taken in the Czech Republic, as discussed in box 4.7.

Overall, policy choices in this area remain diverse, without an always clear-cut distinction between "bad" or "good" practices.

[20] Reforms under Bill 124 addressed the problem of widespread stalled decisions, caused by so-called liability chill, over granting permits. Before the reform, any building design involving limited innovations or new building techniques faced significant delays because of the concerns over liability.

Box 4.7 The Czech Republic: Setting Up a Liability Mechanism in the Construction Sector

In 2007, the Czech Republic started a major reform of its construction permitting system, creating a significant break with its planned-economy legacy. The new building code created a new profession—private authorized inspectors—able to issue construction permits.

Whether the structural safety controls are carried out by the building offices or the authorized inspectors, Czech authorized inspectors hold the liability for damages resulting from substandard building because they draw up the schedule of needed inspections. The builder remains responsible for the building as a whole, and the project designer assumes responsibility for the accuracy of plans and for most of the design and technical aspects of the building. The authorized inspector is materially responsible for his work and carries the legal liability for the building together with them. In the case of a construction failure, an examination takes place to establish if the documents approved by the authorized inspector were correct and whether the designer, constructor, or authorized inspector is responsible for the failure.

Consistent with that liability arrangement, the new building code enforces adequate insurance coverage for the authorized inspectors. Unlike England and Germany, no minimum coverage is required. Instead, the law simply stipulates that the insurance is based on an agreement with the builder contracting the authorized inspector.

Based on experiences abroad, insurance companies will require a long moment to price the risks associated with a new profession. In England, 12 years passed before the central government approved the insurance schemes and insurance coverage became readily available.

Source: Carolin Geginat and Jana Malinska, "Czech Republic: Creating a New Profession from Scratch" (2008); doingbusiness.org/reports/case-studies/economy/czech-republic.

In France, government legislation has established an insurance-driven building-control process. The result has been a construction-regulation system that actually functions with very minimal state involvement and a largely simple and straightforward permitting process.[21] (See box 4.8.) This demonstrates that well-defined liability and insurance mechanism can be a key driver in the construction permitting system for streamlining and minimizing interactions with public authorities.

[21] For more explanations, see the case study for France in chapter 8.

Box 4.8 France's 1978 Spinetta Law: A Building Control System Driven by Insurance Mechanisms

The French system, described in more detail in the chapter 8 case study, has these essential features.

- *A 10-year liability*. Under the (Napoleonic) Civil Code of 1804, the builder and designer are liable for a period of 10 years after construction.
- *Mandatory insurance*. Under the Spinetta Law of 1978, liability insurance was required for builders, designers, and owners.
- *Third-party technical contro*l. The law authorizes the establishment of state-licensed technical-review bodies to inspect higher-risk buildings.

Under this system, the owner's insurance provides coverage against all damage due to any defect and reimburses the owner right away. The owner's insurance then collects from the party (the designer and/or contractor) responsible for the defect. In most cases, the insurance companies settle the claim themselves without intervention from the courts or the owner.

To reduce risk, the law requires technical review for higher-risk projects. Building permits are issued by local municipalities, but technical building control, with the exception of fire-safety inspections for larger buildings, is almost entirely under the control of licensed private third-party inspection agencies.

Source: The authors.

Conflict Resolution Mechanisms

Definition and Scope

Conflict resolution and appeal mechanisms provide potential remedies for persons or firms that consider themselves adversely affected by permitting authorities' decisions. Legislative and regulatory provisions may also be subject to different interpretations, which can be addressed by dedicated dispute resolution or interpretative bodies created by law. In best-practice jurisdictions, appeal processes are established to address situations such as the following:

- *Interpretation of technical requirements.* Disputes between building practitioners and regulators regarding the interpretation of technical building code provisions can be addressed through a dedicated body.
- *Sufficiency of building-code design compliance.* Disputes about whether a particular building design or alternative solution achieves sufficiency of compliance with a regulatory requirement may be addressed by the same or similar body.
- *Licensing of building professionals.* Appeals of disputes between an applicant or registered person and a licensing authority regarding a licensing decision, such as initial licensing, renewal, revocation, or discipline, can be addressed through specialized tribunals.
- *Appeal to civil court.* Building laws typically provide for an appeal to a civil court for persons who consider themselves aggrieved by a decision made by a local building authority.

A robust institutional conflict resolution and appeal system is essential for providing procedural fairness. To be effective, the appeal system must ensure technical competence and procedural safeguards and transparency. Cost can be a factor inhibiting the establishment of appeal bodies, but some can be largely financially self-sustained.

Why Interpretation and Professional Conflict Resolution Mechanisms Are Important

Setting up a professional dispute-resolution mechanism regarding building regulation is an important policy element to promote transparency and a level playing field. Some countries have responded to this need by setting up dedicated dispute-resolution organizations, which typically leverage professional expertise within regulating bodies and the private sector. A significant gap exists between good-practice countries, which tend to have dedicated conflict resolution instruments, and countries that do not have them.

In most Western African countries, such as Cote d'Ivoire, Mali, and Senegal, for example, if a permit is rejected by the building authority the applicant will have no other choice than to file an appeal with the mainstream judicial system,[22] which has limited skills and specialized expertise in the area of building regulations. As a result, a dispute can take several years before it is resolved. This simple fact can act as a strong deterrent to applying for a formal construction permit in the first place, or it can keep existing construction projects hostage to costly and protracted conflicts with building authorities. In Mali, consequently, estimates indicate that informal buildings account for about 85 percent of the existing building stocks.

Major Trends in Reforming Countries

Not all reforming countries offer consistent instruments for conflict resolution. Clear-cut trends are therefore difficult to determine. Based on interviews conducted in the countries included inthe case studies, however, two notable features of a modern and functioning conflict resolution emerge.

- *A dedicated instrument outside the main court system.* Common to good-practice jurisdictions, a separate entity, sometimes having a "conciliation" mandate, is usually in charge of conflict resolution. In the United Kingdom, an appeal relating to planning permits is possible at the Planning Inspectorate. For building permits, the applicant can try to follow an arbitration and conciliation procedure with the national association of the Local Authority Building Control (LABC). If no solution is found, a formal appeal can be lodged with the Department of Communities and Local Government. The applicant can go to court only after having exhausted these instruments.
- *Conflict resolution carried out by knowledgeable professionals.* An important element in the efficiency and fairness of appeal decisions is that professional regulators and industry professionals participate in the specialized conflict resolution bodies and that their views carry weight equal to that accorded to other members. In Canada, for example, the Building Code Commission (BCC) is established by law. While its members are appointed by the minister of housing, all commission members have appropriate technical expertise and are appointed from both the regulatory and the industry sectors. BCC decisions are binding but case specific. Interestingly, decisions by the BCC are final—no further appeal can be made. Hearings on technical issues almost never exceed 6 to 8 weeks, which presents another decisive advantage of the BCC over the main court system.

[22] The *Tribunal Administratif* hears any cases involving public entities, either as defendant or as plaintiff.

Chapter 5. Initiating Reform and Addressing Typical Challenges

Initiating Reform

Building regulatory reform is a process of evolution, sometimes mixed with revolution.[23] It is best accomplished when supported by factual analysis, preferably with early and sustained consultations with and the engagement of stakeholders, and guided by a coherent set of priorities. A successful reform strategy can neither rely on cherry-picking from the system elements described in the previous chapter nor on a one-size-fit-all approach. A sound reform plan should be based on an understanding of the current regulatory system and its history and on factors such as the level of skills in the building industry, climatic and seismic conditions, the growth rate of building stocks, architectural and cultural traditions, the use of specific building regulatory materials, the degree of compliance, and concerns raised by stakeholders.

Initial reform consultations should include a wide range of parties, including participants in the building process and others, even those with an indirect interest who may nonetheless be potentially affected by building construction. Stakeholders with a central role in the building regulatory system include the following:

- Building design professionals and other designers
- Building contractors and trades
- Associations representing professional designers and other practitioners
- Building officials and inspectors approving particular construction projects.

Other key stakeholders include:

- Building owners, managers, and tenants
- Financial institutions financing building projects
- Insurers providing coverage for key practitioners and warranty for owners
- Authorized private-sector building-code consultants and inspection bodies
- Manufacturers of building materials and systems
- Standards organizations that develop materials, testing, and installation standards
- Universities and academics.

Many of the parties listed in the second group should be consulted, or at least their interests should be considered, when developing technical or administrative regulations and introducing new enforcement strategies.

[23] The case studies provided in the last chapter illustrate the use of both "evolution and revolution" in a number of good-practice countries. This is typically the case for recent building regulatory reform in Macedonia, Singapore, Norway, France, and the United Kingdom.

Based on common observations made in reforming countries examined in the last chapter,[24] a typical sequence of engagement runs as follows:

- Consultation with key stakeholders to identify actual problems and information sources
- Prioritization of key issues
- Development of a reform strategy
- Consultation with key stakeholders on the proposed reform strategy
- Training and information seminars with key stakeholder groups
- Establishment of a range of pilot projects to test and improve the reform proposals
- Implementation of key reform proposals
- Ongoing communication with and training of key stakeholders to facilitate implementation and provide continuous feedback.

Box 5.1 Ontario: Starting Reform

The reform effort in Ontario began as early as 1995, initiated by a report developed by an association representing municipalities and incorporating previous proposals and suggestions from a large base of practitioners, regulators, and permitting authorities. Based on this report, the Ministry of Housing established a public-private working group, involving government staff and private-sector building professionals that, along with a parallel Red Tape Commission, developed the basis of what became Ontario's new construction law, Bill 124, introduced in 2001.

This progression of events represents a carefully managed reform and legislative strategy that leveraged private-public mechanisms. While this exercise stretched over several years, the consultations yielded a consensus on three policy objectives:

- Improved compliance with safety requirements and building standards
- Improved skills and accountability of building professionals
- Streamlined procedures and improved transparency on permitting requirements.

A strong effort at building consensus between the private sector and the municipalities was an important factor driving the sustainable and positive reform results observed in the years following the new legislation: in 2009, residential loss from fires decreased by 12 percent, and injuries caused by fire declined by 15 percent, while efforts to streamline permits and building controls improved in several municipalities, including Toronto.

Source: The authors.

Not all countries can necessarily afford to go through such a lengthy, although thorough and orderly, process of consultation and strategy formulation, however. Reforms often must be initiated within short windows of opportunity, on the spur of the moment, when political and human circumstances can be momentarily conducive to change. In 2007, prior to the current political unrest, the Government of Yemen chose to improve the safety of buildings in its capital

[24] See the case studies in chapter 8.

city, Sana'a, following a series of building collapses and fires resulting from design flaws. In this case, consultations were conducted within a short period and led to a choice of measures and an implementation sequence carefully calibrated to the problems and challenges faced by regulators and building professionals.

Box 5.2 The Three Phases of Yemen's Building Reform Strategy: 2008–10

Prior to its efforts in 2008–09 to promote safer buildings in large urban areas, Yemen had seen chaotic development of commercial and residential buildings, especially in Sana'a and its periurban area. The process for controlling building design and construction was not formalized, and no accepted technical regulations for building had been established.

In the months prior to the reform consultations, a string of accidents, including lethal fires, had resulted from design flaws in commercial and residential buildings ranging from three to seven floors. Stakeholder consultations were initiated by the Ministry of Public Works, and a plan was drafted and discussed with building professionals over a period of six months. The reform team chose to start with first package of reforms including the following:

- Adopting a uniform building code by adjusting the existing building code developed by the Arab League
- Defining a class of high-risk buildings on which the very limited existing resources for checks and controls would initially focus
- Assisting building professionals in submitting appropriate building plans by conducting information campaigns and making available newly designed checklists
- Formalizing a process for construction and occupancy permits covering administrative concerns and legal requirements and supplying necessary information such as property ownership and zoning.

The next phase of reforms, well underway in 2010, involved broader stakeholder communication aimed at industry, as well as pilot projects in three large districts of the city. A third phase envisioned rolling out these district experiences by introducing basic mandatory qualifications for designers and introducing electronic permitting with time limits in large areas of Sana'a. This last phase may be considerably delayed due to the ongoing political upheaval, however, and new government regulations and priorities may emerge after the war.

Source: The authors.

Addressing Typical Challenges

For all of the eight major policy areas described in the previous chapter, the last decades saw the accumulation of rich and diverse experience. Previous reform experience points to typical problems that often repeat across countries engaged in reform. New reformers should always be ready to leverage global experience and build solutions based on lessons learned elsewhere.

This chapter presents a nonexhaustive survey of twenty high-level problems and issues typically arising at the outset of the reform process in six of the policy areas discussed in chapter 4 (the exceptions are independent third-party control and product certification), with brief suggestions of ways countries can overcome these problems. The following issues are addressed:

- No uniform building code exists.
- The building code is out of date.
- No process or set of criteria exists for updating the code.
- The building code limits innovation and is too prescriptive.
- Significant bottlenecks impede local building authorities, resulting in a backlog of applications.
- The procedure lacks transparency.
- Large- and small-scale projects follow the same permit process.
- Obtaining a construction permit takes too long.
- Land-use plans are administered by the senior (or state) level of government.
- Land-use plans are out of date.
- Planning requirements lack transparency.
- No mandatory professional standards have been set for designers.
- The regulation of professionals creates conflicts of interest.
- The responsibilities of key parties are not delineated.
- The permitting agency has no formal liability.
- Liability is allocated inappropriately or key parties have no liability.
- Key parties have no insurance.
- Conflicts arise between permitting agencies and building practitioners over the interpretation of technical and administrative provisions.
- Permitting agencies often reject innovative technical solutions.
- The system has a limited capacity to deal with disputes between building practitioners and permitting agencies.

Building Codes

PROBLEM: *No uniform building code exists.*
POSSIBLE SOLUTION: Mandate a building code under a construction law, building act, or the equivalent. The best approach is to engage professional designers, builders, developers, and other building professionals and stakeholders in offering advice on adopting a code. Existing building codes, such as the Eurocode from the European Union or the International Building Code (IBC) from the United States, can serve as potential models. Countries frequently modify these codes to address local circumstances. Building codes should be adopted early in any reform process since they provide the foundation for a risk-based approach, practitioner training, product approvals, and transparent and predictable regulatory systems.

PROBLEM: *The building code is out of date.*
POSSIBLE SOLUTION: Establish the technical capacity to update the code by setting up a working group including private and public building practitioners. To limit the frequency of code changes and to maintain predictability, the country should establish a code update cycle, such as every five years.

PROBLEM: *No process or set of criteria exists for updating the code.*
POSSIBLE SOLUTION: Establish a transparent public consultation process for significant code changes. Private building practitioners should be allowed to suggest updates through a formal and transparent process. Such requests should lay out the rationale (that is, why the change is needed, its benefits, and anticipated costs), and they should be publicized.

PROBLEM: *The building code limits innovation and is too prescriptive.*
POSSIBLE SOLUTION: Prescriptive components of existing codes should be retained, since they are useful for practitioners using traditional design methods or materials. But codes should be expanded to included performance measures and provisions that allow for alternative or innovative solutions that meet the same performance levels already set by regulators. Performance- and objective-based codes are important factors allowing speedy, efficient building controls to be carried out by enforcement agencies.

Building and Occupancy Permits: Processes and Institutions

PROBLEM: *Significant bottlenecks impede local building authorities, resulting in a backlog of applications.*
POSSIBLE SOLUTION: Involve private building practitioners in building-control functions (plan reviews and inspections) and consider relying on self-certification for low-risk building applications. This approach can only be enforced gradually as qualification and accountability systems for building professionals become sufficiently robust.

PROBLEM: *The procedure lacks transparency.*
POSSIBLE SOLUTION: Introduce automated procedures and publish information online, including complete application requirements and process guidelines. This information should be on the main building agency's website. Mandate planning departments, airport authorities, and highway, heritage, and agricultural agencies to publish their requirements related to new construction, including digital maps delineating areas of concern where development is prohibited or clearances may be required.

PROBLEM: *Large- and small-scale projects follow the same permit process.*
POSSIBLE SOLUTION: Introduce risk management into the building permit process. Smaller, less complex and less risky projects may depend on self-certification, while more complex and riskier projects will require more robust third-party reviews. Less differentiation will be required for other building permit process functions, such as clearance and zoning review, which apply to most projects anyway.

PROBLEM: *Obtaining a construction permit takes too long.*
POSSIBLE SOLUTION: Establish time limits for plan reviews and other clearances required from other agencies. The time limit may vary with the different building classes (for example, more time may be allowed for a high-rise commercial building than for a small residential building). Provide guidelines on complete applications that can "start the clock" for permit reviews that include checklists and guidelines for all application requirements. In some cases, a time limit can be associated with a "silence-is-consent" rule, but this should be introduced very cautiously and only for low-risk buildings.

Sound and Transparent Urban Planning Requirements

PROBLEM: *Land-use plans are administered by the senior (or state) level of government.*
POSSIBLE SOLUTION: Assign core planning and zoning responsibilities to local authorities. Planning approval should be decentralized to the extent possible to improve efficiency, accountability, and coordination with building permit approvals. Local municipalities and their residents are most directly affected by land-use decisions: they are always in a better position to evaluate the impact of development proposals on infrastructure, the community, and the local tax base. Senior level (or state) governments have a more natural role in policy issues that cut across municipal boundaries. This includes major transportation, transit, infrastructure, investment, or broad impact issues. (See box 4.5 on the role of central government in the French local planning process.)

PROBLEM: *Land-use plans are out of date.*
POSSIBLE SOLUTION: Enforce periodical planning update cycles, such as every 5 to 10 years, involving local stakeholders and systematic public consultations. Updating city master plans and zoning requirements is essential to avoid the development of excess discretion in individual planning permits. An updated zoning plan should create a straightforward and predetermined "right to build" when a building project is in compliance with zoning requirements.

PROBLEM: *Planning requirements lack transparency.*
POSSIBLE SOLUTION: Ensure full disclosure of planning information and public consultations. In countries transitioning from a command-and-control to a market economy and with only a recent history of embracing private land ownership, full disclosure of planning information is not always widely accepted. Establishing web-based, detailed land-use plans, such as those used in Vienna, remains the most effective measure for ensuring high standards of transparency.

Professional Standards and Oversight Mechanisms

PROBLEM: *No mandatory professional standards have been set for designers.*
POSSIBLE SOLUTION: Create mandatory professional standards based on the compliance strategy chosen by the country (see, for example, the U.K. model and the Austrian and German model, discussed above in boxes 4.3 and 4.6, respectively). Many countries blend mandatory professional licensing for larger and more complex buildings with a more open system covering smaller, less complex buildings. In best-practice countries, having a project designed by an architect or engineer is not the only check on safety. Building designs are still reviewed by a third party, and construction is still subject to inspections. A building design carried out by a designer, however, is less likely to have a defective design and so is more likely to lead to a safe building.

PROBLEM: *The regulation of professionals creates conflicts of interest.*
POSSIBLE SOLUTION: Problems with professional licensing bodies usually relate to a conflict of interest. The association seeks to improve its image and serve its members and therefore avoids disciplinary actions against members that may bring unwanted attention to the profession. Typical problems include inadequate qualification requirements and, more frequently, inadequate discipline, allowing incompetent or negligent practitioners to continue to practice regardless of their track records. Once diagnosed, the problem admits of the following remedies:

- Modify the governance structure of the licensing body so that the majority of directors are not professional practitioners, or at least increase the representation of nonpractitioners or other stakeholders to better represent the public interest.

- Improve government oversight of the governance body.
- Introduce more robust insurance requirements, peer review, and continuing professional training.

Liability and Insurance Systems

PROBLEM: *The responsibilities of key parties are not delineated.*
POSSIBLE SOLUTION: Delineate roles and responsibilities of key parties, including the building owner, designer, manufacturers, contractors, inspectors, and any private inspection agencies. This can be done through legislation, regulation, or interpretive guidelines. Clarifying the roles and responsibilities of all parties will help to ensure that all parties and practitioners recognize that building safety and compliance with building codes are a shared responsibility.

PROBLEM: *The permitting agency has no formal liability.*
POSSIBLE SOLUTION: Extend liability to the permitting agency. In good-practice jurisdictions, building permitting agencies are liable for acts of both omission and commission. In other words, permitting agencies should be liable for what they do as well as for what they fail to do. In common-law countries, case law has established that once a permitting system is created, the permitting body has a duty of care to all persons, not just to the building owner.

PROBLEM: *The liability is allocated inappropriately or key parties have no liability.*
POSSIBLE SOLUTION: Extend liability to additional practitioners, such as contractors and small building designers.

PROBLEM: *Key parties have no insurance.*
POSSIBLE SOLUTION: Require certain key practitioners to carry liability insurance. In many good-practice jurisdictions, professional designers such as architects and engineers are required by their professional associations to carry liability insurance, with the extent of coverage determined by building type. The challenge for policy makers is to avoid creating barriers to entry for smaller and new entrants into the design or construction business while avoiding unfair competition between responsible firms that obtain insurance and firms unable or unwilling to obtain coverage and that can thus operate at lower cost.

Conflict Resolution and Appeal Mechanisms

PROBLEM: *Conflicts arise between permitting agencies and building practitioners on the interpretation of technical and administrative provisions.*
POSSIBLE SOLUTION: Senior regulating agencies must provide interpretations of technical and administrative provisions. The level of government that developed the legislative and regulatory articles should provide interpretations regarding their intent. Interpretation of legislative and regulatory articles can be nonbinding and offered to practitioners or enforcement agencies on an informal basis. Interpretations can also be binding, in which case a more rigorous development process may be used, with the results equally binding on the permitting authority.

PROBLEM: *Permitting agencies often reject innovative solutions.*
POSSIBLE SOLUTION: Establish a commission of experts to make rulings on building innovations. An independent commission composed of experts in several technical fields should be empowered to make rulings on whether a particular innovative or alternative building system, material, or design complies with the objectives and performance levels defined in the building code.

PROBLEM: *The system has limited capacity to deal with disputes between building practitioners and permitting agencies.*

POSSIBLE SOLUTION: Establish an independent, quasi-judicial dispute-resolution body. A quasi-judicial body that can make binding decisions within its area of expertise should be established to deal with disputes between practitioners and permitting authorities on matters related to the interpretation of building codes or the sufficiency of compliance.

Chapter 6. An Overview of Best Practices

The table below presents a nonexhaustive summary of specific good practices in construction-permitting and building-control systems. The practices listed below are based on analysis and reports presented in previous chapters as well as on the country case studies in chapter 8.

Table 6.1 An Overview of Best Practices

Building Codes	Background
Incorporate building codes into the framework of construction law.	In good-practice countries, building codes are at the core of the construction permitting system. They establish common points of reference between regulators and industry practitioners for public health and safety, energy efficiency, fire protection, structural efficiency, and conservation and environmental integrity. Good- practice codes are important for creating a transparent environment for investors and developers and for avoiding delays and disputes. For these purposes, existing or international model codes, such as the International Building Code (IBC), can be used and adjusted to the constraints of the local industry.
Develop performance-based building codes specifying the desired technical outcomes rather than the specific ways those outcomes should be achieved.	Increasingly, building codes are performance- or objective-based. Such codes have been developed to avoid inhibiting innovation and to contribute to faster, more efficient plan reviews and inspections by control bodies.
Introduce risk-management instruments into building codes, including a country-relevant classification of buildings.	Good-practice building codes typically include a comprehensive classification of risks that defines different groups of building categories by size, construction method, and final use. The classification determines the level and intensity of checks required for each group of buildings and hence creates a transparent framework for enforcement agencies and building practitioners.
Update the building code every 5 to 10 years.	Building codes should be updated in light of research, improving building techniques, and the availability of new products and technology. Other factors that create the need for regular code updates include the construction industry's evolving skill level and maturity and the pressure to enforce new policies, i.e., to reduce buildings' levels of energy consumption and CO^2 emissions.
Create public-private mechanisms for updates to building codes.	To ensure sustainability and depth, the updating process should be as inclusive as possible, involving a mix of professional regulators and private building professionals, preferably through a permanent working group or specialized committee.
Process and Transparency	**Background**
Publish on a dedicated website all procedural requirements, including guidelines, and provide advisory services targeted to the needs of end users.	Good practice usually combines an exhaustive publication of administrative requirements for construction-permit applications with the possibility of interacting with one building-permit official for a preliminary project screening. This initial advisory interaction can be informal, but it is decisive to determine what specific laws and regulations are applicable to the project.

(continued on next page)

Table 6.1 *(continued)*

Streamline approval and permit processes.	This activity can be carried out with the goal of reengineering procedures. If carried out at the central level, a standardized target procedure can be defined to help local building authorities develop their own streamlined process for plan reviews and inspections. In Canada, for example, a typical seven-step process was developed for building inspections. Streamlining achieves high results when tied to specific risk levels, time limits, and increased procedure automation.
Automate processes and develop electronic tools common among all permitting agencies and industry practitioners.	The world's leading examples of successful automation of construction permit procedures, such as Singapore and Hong Kong, consistently point to the importance of preliminary efforts to simplify procedures. New tools such as building information modeling (BIM) add automated compliance checks that can play a powerful role in improving future industry compliance with building code requirements.
Lower the burden of controls on public agencies by involving private-sector engineers in plan reviews and inspections.	This approach can be adopted to address the bottlenecks experienced in traditional local public building authorities. Third-party plan reviews and inspections can be delegated to private-sector engineers (as in Austria), or private engineers can take prime responsibility for carrying out these tasks (as in the United Kingdom). Moving toward practitioner-focused enforcement of building controls requires developing robust professional qualification systems and professional supervision.
Impose full transparency about building inspection schedules and the results of inspections.	Good-practice building inspections are organized on the basis of a schedule predetermined among the inspection bodies, the main building agency, and the contractor. They should be objective-based and focused on the different construction steps of a building's construction cycle. All inspections should therefore lead to documented and transparent results through formal reports, including the reasons behind any stop-orders. They should be supported by checklists of the building aspects to be inspected.
Create a dispute resolution mechanism for compliance issues relating to building-code requirements.	Reforming countries have established specialized bodies with building-code officials and private building practitioners to resolve the disputes that typically arise from rejection of construction permits or stop-orders issued by inspectors. This is important to preserve the rights of applicants, and it provides a tool for dealing with conflicts and ensuring that the backlog of requests pending at the municipality level remains as small as possible.
Payment of Fees to Building Permitting Agencies	**Background**
Ensure that fees are collected once and by one entity only.	In the United Kingdom, the full permit fee is usually paid, at the time of application, to the planning department. In the large urban centers of other good-practice countries, applicants may be uncertain about zoning or other clearances required. In this case, countries make provision for a pre-applicable law review. In Canada, as an example, the cost of this review is 25 percent of the full construction permit fee. This amount typically counts toward the full permit fee if the application passes the clearance review and proceeds to a technical review. The remaining amount is payable during construction before the technical review and inspections. In many good-practice countries site inspections do not incur a separate fee;this cost is included in the building-permit fee.
Establish fee levels based on cost recovery for building control services.	Fees should normally include the costs associated with the review of plans and any inspections (whenever such reviews and plans are conducted by the enforcement agency), along with overhead costs. New Zealand adopted this practice: its construction-permit fees cover all service costs, including fees for issuing a building-code compliance certificate when the building is completed.

(continued on next page)

Table 6.1 *(continued)*

Ensure that fees do not fulfill a tax purpose.	Low municipal tax resources create an incentive to turn building- permit fees into proxies for tax revenues. In Lebanon, the absence of up-to-date information on property ownership and other relevant property-based information drives enforcement agencies to collect funds through construction-permit fees when funds would normally be collected through property taxes. If deficiencies in the property-tax system require collecting funds at the time of construction,the tax portion of the building-permit fee should be clearly identified and delineated in the interest of transparency and accountability.
Charge small, fixed fees for small projects presenting no risk for public health and safety.	For small buildings, setting a small, fixed fee is good practice. In Toronto, *Commercial Xpress*, a construction permit one-stop shop, charges a fixed fee of CAN $16 per square meter for office buildings. The starting point for this reform is the introduction of a risk-based management system with defined thresholds for fast-track procedures with a simplified fixed-fee payment procedure. Minimum fees are necessary because the cost of providing services is not directly proportional to the area or cost of the building; a minimum charge is therefore necessary to cover enforcement costs for small projects. Large projects with substantial permit fees will typically cross-subsidize smaller projects.
Allow several options and instruments for fee payment.	Modern one-stop shops for construction permits allow several payments mechanisms, including online payments. This is the case of the CORENET system used in Singapore to allow both electronic submission of plans to the building authority and e-payment of fees. Local building authorities should be encouraged to allow different forms of payments, such as credit cards and checks.
Publicize fee schedules.	This practice is associated with the one-window services typically hosted by a municipality or relevant local planning or construction permit enforcement authority.
Other Measures	**Background**
Extend liability to permitting agencies.	In good-practice jurisdictions, building-permit agencies are liable for acts of both omission and commission. In other words, permitting agencies should be liable for what they do as well as for what they fail to do.
Require key building professionals to carry insurance.	A functioning liability regime should be coupled with a compulsory insurance system for owners, designers, and contractors. This is an important factor that can help avoid delays due to unclear liability conditions.
Increase accountability of permitting agencies through innovative institutional arrangements.	Successful reforms of building-control procedures usually have a strong institutional element. Permitting agencies in New Zealand, for example, are now accredited by a central building authority and are monitored using a set of standardized indicators focused on the quality and efficiency of the services delivered to project owners and the industry. Private entities can become permitting agencies (termed building consent authorities) if they satisfy accreditation requirements and maintain consistent standards of permit and inspection delivery.
Monitor reforms with a set of appropriate indicators within an established public-private working group.	Building-control reform should be made a permanent process and should involve a large panel of experts and end users from both the public and the private sectors. A key instrument for policy making and prioritization of reforms should involve use of specific performance indicators for reduced red tape and for effective building-control procedures. Indicators should also measure achievements in attaining key public goods, including safety, fire prevention, and energy efficiency.

Source: The authors.

Chapter 7. Performance Measures and Evaluation of Building Regulatory Systems

This chapter discusses concepts of indicator-based measurement of the performance of building-control regulatory systems and how such evaluations can be conducted by the national authorities in charge of construction, housing, and urban development. The best-performing building regulatory systems are primarily those that achieve a high level of compliance with building regulations and that do so efficiently.

Objective measurements can assess performance over time, across country boundaries and systems, and throughout reform processes. Building regulatory systems are seldom measured in a comprehensive and systematic way, however. Best-practice countries, such as New Zealand, may have national authorities that monitor the performance of local building enforcement agencies using a set of dedicated indicators, but even this approach does not capture all important regulatory outcomes, including safety and the effective reduction of greenhouse gas emissions at the national level.

The generally slow uptake in measuring performance is a result of the complexity of building control systems, which have many objectives competing for time and money. Many practitioners and stakeholders are involved as well, some of whom may have priorities different from those of the government. In addition, some aspects of performance are more quantifiable than others. Finally, measurable outcomes often may be only partly attributable to building controls.

Many central and subnational policy makers and authorities with general oversight of building regulation reforms have found this three-step approach to measuring performance effective.

- Define the scope of the building regulatory system to be measured.
- Identify the key outcomes of the building regulatory system.
- Identify key performance indicators to measure building regulatory system performance.

Define the Scope of the Building Regulatory System to Be Measured

As a first step, the boundaries of the building regulatory system to be measured and evaluated must be clearly defined.

Focus on New Buildings

Generally, the building regulatory system is understood to be the system that regulates new building construction and renovation, including compliance with regulations governing where something can and cannot be built and any preconditions for construction. This means that the performance indicators, to be effective, should focus on new buildings and renovation and the associated regulatory process. The indicators should not focus on older buildings affected

by factors beyond the control of the new construction building regulatory system. Such factors include owner maintenance, repairs, and retrofits that may compromise building safety; the effectiveness of fire-code enforcement; and property standards for existing buildings. Older buildings were likely constructed under older building codes and regulatory regimes, rather than the regime being measured.

Avoid Measuring Silos

Within the boundaries of the building regulatory system, performance measures assess the performance of all players contributing to an outcome, including local building authorities; building code development authorities; building designers, including architects and professional engineers; building contractors; and the trades. In some jurisdictions, responsibility for these parties may be distributed among different ministries, with one responsible for public "right to practice" legislation governing engineers and architects, for example, and another responsible for building codes and legislation governing local building authorities and building inspectors; yet another ministry may be responsible for the agency licensing home builders and regulating new home warranties. Moreover, in some jurisdictions, responsibility for some building components, such as elevators, boilers, and fuel-fired appliances, may be under a separate ministry as well. Such a fragmented regulatory system can lead to difficulties in attributing regulatory system performance to any particular ministry's area of responsibility. From the perspective of citizens and industry observers, these "regulatory silos" are often viewed as unnecessary. Some critics believe such fragmented accountability leads to finger pointing and avoidance of accountability.

As a practical matter, if an administrative system is fragmented, identifying a lead and gaining cooperation from other agencies will be more challenging. Direction from the "center" (the prime minister's office or another senior government entity) may be necessary in such cases.

Identify the Key Outcomes of the Building Regulatory System

Once the scope of the building regulatory system to be measured is established, the next step is to define the outcomes that it is trying to achieve. These outcomes will be affected by the country's public-policy priorities and the risk-management strategy employed for the building regulatory system. Regulatory system outcomes are often classified into two broad categories related to effectiveness and efficiency.

Effectiveness

Effectiveness in this context is defined as the extent to which the building regulatory system achieves compliance with regulatory system requirements such as public safety, energy efficiency, water conservation, accessibility, building cost, or affordability. In addition, the building regulatory system is responsible for ensuring compliance with other applicable laws, such as land-use zoning or rules governing construction in floodplains or near airports.

Based on the risk-management approach adopted, compliance with some regulatory requirements and outcomes will be more important than compliance with others. Risk-management strategies tend to focus resources where the consequence of noncompliance have the biggest impact on public safety. Noncompliant and inadequate structural design or fire safety in a high-rise building, for example, will be more of a concern than noncompliant sound proofing in a townhouse complex. The choice of performance measures or indicators must therefore be sensitive to priority and nonpriority outcomes based on the jurisdiction's risk-management strategy.

Efficiency

Efficiency in building regulation indicates how efficiently the system achieves the effectiveness measures or regulatory compliance described above. Indicators of efficiency would typically include the following:

- The time required to get approvals or reviews
- The number of visits made to regulatory authorities
- The number of construction and occupancy permits issued
- The aggregate cost to the private sector of going through the process
- The level of transparency with respect to regulatory requirements and application procedures.[25]

Identify Key Performance Indicators to Measure Building Regulatory System Performance

Having established the scope of the building regulatory system and the key outcomes to be measured, the third step is to identify potential performance measures or indicators. Potential performance measures can come from many sources, and they may be direct or proxy indicators for the targeted outcome being assessed. To allow for comparisons among jurisdictions and to assess changes in performance over time, performance indicators must be applied consistently and without change from year to year.

Measuring compliance with statutory obligations can pose legal challenges. Local building authorities, for example, might resist reporting on their compliance with mandatory permit review time frames or other statutory obligations to avoid self-incrimination, since the local authority's admission of noncompliance could be used in civil litigation against it.

The table below provides a nonexhaustive list of some potential performance indicators combining effectiveness and efficiency goals.

[25] These performance measures might require independent surveys focusing on applicants for building permits and building occupancy permits. They should primarily target designers, architects, and developers to the extent these professionals are actually entrusted by owners to pursue the requisite permits.

Table 7.1 Performance Indicators for Building Regulatory Systems

Desired Outcomes	Potential Performance Indicator	Comments, Issues
Effectiveness Indicators		
Public Safety, Code Compliance	• Rate of deaths and injuries due to fire, structural collapse, or other defects in new buildings relative to the size of the new building stock, collected from municipal building departments and consolidated into database	This requires local authority cooperation.
	• Survey of developers regarding cost to repair building defects in the new building stock before completion and survey of owners regarding cost within specified time after occupancy	Defects must be related to noncode compliance.
	• Random unannounced periodic audits of new buildings by inspectors engaged by senior government to assess code compliance, including plan reviews, for a full range of building types in rural and urban areas	Can be potentially effective for visible elements; plan reviews may assess hidden elements; problematic under joint and several liability regimes.
	• Information on building defect settlements in civil litigation against designers, contractors, and building officials	Some settlements are subject to confidentiality provisions; generally difficult to get.
	• Residential building defect information from home warranty providers(limited to major structural and other code elements)	Warranty providers may be reluctant to provide this information as it could lead to challenges re insurance premiums.
Compliance with Zoning Requirements and Clearances	• Estimates or surveys of illegal building through random surveys	Discovery of noncompliance may pose problems with no easy solution; survey results may need to be confidential.
Efficiency Indicators		
Number of Permits Issued	• Construction permits delivered, measured at the subnational level or aggregated at the national level	
	• Occupancy permits at the subnational level or aggregated at the national level	
Permit Review Times	• Time to review a complete permit application as reported by the building permit authority	If a legislated obligation, some authorities may not always collaborate.
	• Time to review a complete permit application as reported by the developer or applicant	Reports from an interested party may raise issues of objectivity and consistency.
Clearances Review Processes and Time Frames	• Survey of developers on clearance agency transparency and review times	
	• Percentage of local agencies with land-use plans and infrastructure (water, sewer, road access, etc., online)	Senior government directly surveys of clearance agencies.
	• Percentage of other clearance agencies with complete application requirements and information online	Senior government reviews zoning and land-use system transparency.
Cost Reduction (or Saving) for Firms Going Through a Construction and Occupancy Permit Process	• Reduction of transaction costs for private developers and applicants for a construction permit and an occupancy permit (see the discussion below of the IFC *compliance cost savings,* or CCS methodology)	Senior government should take full ownership to monitor these costs in all or in pilot and subnational jurisdictions.

Source: The authors.

Reforms streamlining construction permits are also believed to result in significant savings for the private sector, due to the reduction in time and costs needed to obtain permits. To calculate these benefits, the International Finance Corporation (IFC) developed *a compliance cost savings* (CSS) methodology to monitor the efficiency of its technical assistance projects supporting construction-permit streamlining. This approach can be replicated in reforming countries. In simple terms, CSS includes savings resulting from reduced fees and/or staff time required to obtain a permit. The IFC approach uses the following formula to calculate firms' savings:

Figure 7.1 IFC Formula for Calculating Compliance Cost Savings

TOTAL DIRECT COST NET OF TAX	=	Number of construction permits obtained in the absence of the reform	x	{	(Fees in US$ before the reform)	-	(Fees in US$ after the reform)	+	(Employee daily salary in US$ before the reform)	+	(Employee work-days required to obtain a construction permit before the reform)	-	(Employee work-days required to obtain a construction permit after the reform)	}	x	[1-	(Corporate income tax before the reform)		

Source: IFC.

This formula results in a conservative calculation, as it considers the number of construction permits obtained to be static and only captures savings for firms that obtained a permit *prior* to the reform. To capture the growth in construction permits obtained over time, the formula can be adjusted to account for new permits. (See box 7.1.)

Box 7.1 Egypt: First Impact Results of Construction Permit Reform

As a part of IFC's Business Start-up Simplification project in Egypt, implemented between 2008 and 2010, IFC introduced several measures to make construction permits easier to process. IFC supported the Ministry of Housing, Utilities, and Urban Development in drafting, adopting, and rolling out its new regulations simplifying the building-permit process. It also facilitated cooperation between the ministry and several preapproval authorities to streamline clearance processes, and it conducted an extensive awareness campaign targeting all major stakeholders from the public and private sectors, presenting the new procedures and its benefits.

As a result, 23 building permit procedures were eliminated by the government, and 52 entities, governorates, and urban authorities implemented the changes, with the private sector experiencing a reduction in the time required to obtain a building permit of more than two months on average. At the firm-level, Egyptian businesses now need, on average, 11 fewer employee workdays to obtain a permit, as compared to the prereform total of 28 days.

As for the reach and impact of the reform, the Ministry of Housing estimates that 128,000 construction permit cases benefited from reduced processing time in only the first two years after the reform. Using the compliance cost savings (CCS) methodology, the reform resulted in aggregate cost savings of more than $6.6 million (2010 discounted value) in the first two years after project completion. This value is expected to grow, as the benefits of the reform continue to materialize in the following years.

Source: The authors.

Final Remarks

Reformers can usually anticipate two impediments to establishing a robust performance measurement system at the national and subnational levels:

- First, *political resistance* may arise toward a program that may expose weaknesses within or beyond the control of the current building regulatory system.
- Second, the *cost in time, staff, and resources* to implement an effective system may cause resistance, when it can always be argued that the resources should go either to improving the system or to other priority government services.

These arguments can be easily countered, however. While the costs and difficulties of a performance-measurement program will be felt over the initial development and launch of the program, the benefits will show up over the longer term. Senior government authorities taking a leadership role in performance measurement should keep in mind that the actual practice of performance measurement can result in perverse behaviors. Participants may gear their behavior toward improving performance scores, in the process undermining the achievement of legitimate objectives. This risk should be mitigated by the choice of a meaningful mix of indicators that will balance process and outcome indicators.

In addition, governments should vigorously enforce a private-public participatory approach to reform monitoring with the view of creating a conducive framework for an open, transparent, and honest interpretation of results.

Finally, over time, an effective performance-measurement program can provide an objective measure of performance that helps identify weaknesses, allowing governments to assess the effectiveness of their regulatory system reforms, reduce fragmentation among regulatory agencies, and facilitate cooperation to improve the building regulatory system.

Chapter 8. Ten Case Studies

This chapter provides an in-depth review of past and ongoing reforms in 10 countries, one unnamed, based on research and interviews conducted with private-industry practitioners, regulators, and enforcement agencies between February and September 2012. Each case study follows a standardized structure, starting with the situation prior to reform, outlining the main reforms, and then describing the key outcomes and lessons learned. The case studies focus on the countries' experiments in building control reform, noting their successes and failures. Box 8.1 presents highlights from each case study.

Box 8.1 Building Control Reform Case Study Highlights

A CAUTIONARY TALE

New Republic and the Price of Secrecy—Uncertainty and Additional Risk

Like other former Soviet Republics, New Republic* is still transitioning from a command-and-control regime to a market economy. Although this is a challenging process for all of the former Soviet republics, some have transitioned more quickly than others and more quickly in some areas than in others. In terms of building controls, New Republic's land privatization process has been bureaucratic, ineffective, and plagued by remnants of the old system's reliance on secrecy.

Secrecy leads to less efficient and effective planning and building controls as well as to a less efficient and effective land development and building industry. Because New Republic's land-use plans and other relevant information remain both out of date and undisclosed outside the government, establishing compliance with planning and other building-related laws is complex, time consuming, and uncertain. From the developer's point of view, the lack of planning information and the complex process for land allocation and permit approvals make land development uncertain and risky. Foreign investors too are discouraged, knowing they would need to compete with local investors with insider information and to settle ultimately for subprime land parcels.

By adopting some of the best practices used in other transitioning and advanced market economies to address such developer concerns as transparency and consistency in planning and allocation as well as government concerns about land speculation, New Republic can further both its economic development and its public safety goals.

** The circumstances, trends, and choices ascribed here to New Republic derive from those of an actual transitioning economy, unnamed out of consideration for its ongoing reform efforts.*

(continued on next page)

Box 8.1 *(continued)*

AUSTRIA

First Build a Solid Foundation, Then Streamline the System

Austria's building control system focuses on who can build rather than on the building: in other words, the builder rather than the building.

This system presents risks in that heavy reliance on practitioner licensing or "barriers to entry" can create impediments to progress or price increases during construction booms if not enough licensed practitioners are available to carry out the work. Systems that rely heavily on either professional designers and contractors or professional inspectors require strategies to deal with supply issues.

In Austria a strong foundation of transparency and professionalism has improved the regulatory system. Increased transparency improves developer and builder engagement, thereby increasing efficiency. Increased transparency also reduces public-sector discretion and the potential for corruption.

COLOMBIA

Private Help for a Public Problem—Colombia's Journey into Private Approvals

Colombia introduced a new system that moved the administration of building permits out of state-run planning offices and into the private domain. Private professionals, called *curadores,* became responsible for the complete and timely review of building-permit applications.

Bogotá's Planning Office was understaffed and unable to keep up with demand. This made it very difficult for construction professionals to develop their projects. With the use of private professionals the process improved significantly. But although the introduction of the *curadores* was well intentioned, it was implemented without proper preparation. No pilot plan was used, and the quick change confused some applicants who were unprepared for the new system.

Another area that might call for improvement is government oversight. *Curadores* are subject to oversight because they perform a public service, but the law does not specify the government agency responsible for it. To improve the system's checks and balances, revised fee schedules should be considered as well. *Curadores* currently set their own fees according to the project's size and complexity, with bigger projects earning larger fees. As a result, some builders complain that smaller—less lucrative—projects don't get enough attention.

FRANCE

Private Liability and Insurance as the Main Drivers to Promote Compliance with Building Standards

The French system is one of only a few—if not the only—building regulatory systems driven by insurance. The United Kingdom system has some elements similar to those of the French system, in that private-sector third-party review bodies (approved inspectors) must be linked to a warranty provider for home inspections, but this requirement does not apply to nonresidential building.

In France, all third-party review is undertaken by accredited bodies recognized by the insurance companies. The Spinetta Act of 1978, based on the liability regime in the Napoleonic Code, required broad-based insurance and warranty coverage. A strong insurance system that maintains the role of the state as regulator has proven very successful in creating a more efficient system.

(continued on next page)

Box 8.1 *(continued)*

Independent and efficient courts have also been important elements in France's reforms. The court system has not only regularly ruled to enforce the obligations of the constructors and insurance companies, it has actually expanded them over time through an extensive interpretation of the "fit for intended use" clause of the Civil Code.

Emphasizing the liability of private parties may be a more powerful tool than state inspections to ensure compliance with building standards. Reform in France shows that leveraging the power of the market may be a stronger incentive than the fear of fines or sanctions.

MACEDONIA

Transitioning from a Command-and-Control Approach to a Privatized System of Building Controls

Macedonia is part of a leading group of transitional economies that are rapidly and successfully shifting away from antiquated state-controlled, process-oriented, and costly bureaucratic building procedures. Consistent with the experience of other countries that have followed a similar path, Macedonia's privatization of building controls should be immediately supported by the enforcement of more stringent qualification requirements for building professionals.

Additionally, authorities should adopt a modern building code and appropriate standards before embarking on reforms giving more responsibilities to private professionals. Because of these as yet unfulfilled goals, Macedonia will need to work backward once the Eurocode is formally adopted and adjust important aspects of its current system.

NEW ZEALAND

A Focus on Building Control, Accountability, and Consumer Protection

Many countries have established service standards for local building authorities requiring them to have qualified persons on staff who can review building-permit applications within specified time frames. In many countries, however, medium- and small-sized municipalities lack technical capacity or resources to provide the level of service expected or, in some cases, required by legislation. New Zealand's reform targeted improvements in the transition process for the accreditation of building consent authorities (BCAs). The BCAs were not ready to perform this new task, and their lack of preparation may have led to delays in many jurisdictions.

After improving the municipal service standard and enforcement, New Zealand turned to accountability and documentation and to improving the capacity of designers and contractors to comply with the code. The New Zealand Government has recognized that, while third-party enforcement is important, enhancing the capacity of designers and contractors and empowering the consumer through better information can have an even bigger impact on streamlining of and compliance with building control processes.

(continued on next page)

Box 8.1 *(continued)*

NORWAY

Trust But Verify—Norway's Experiment with Self-Certification

In an effort to streamline its building-permit process while leaving code compliance to the professionals, Norway decided to embark on a bold and unique experiment by eliminating mandatory third-party inspections and relying on self-certification by licensed practitioners. Self-confirmation refers to a construction-permit system placing complete reliance on the project designer to comply with building-code requirements.

The self-certification experiment led to a more streamlined system but also to increases in building defects and reduced building safety. Norway decided to keep the system of self-certification, but it brought back mandatory third-party review for certain crucial building components. The third-party review by certified private inspectors focuses on certain structural, fire safety, and building envelope components.

The lesson drawn from Norway's experience was that despite self-certification by licensed practitioners and oversight by municipalities, significant increases occurred in building defects and safety problems in the absence of third-party review of crucial building elements.

SINGAPORE

Combining IT Solutions with Public-Private Collaboration to Achieve More Efficient Building Approvals

Electronic permitting systems can greatly contribute to efficiency for both the industry and regulators. Following IT-based reforms in Singapore, both developers and regulators have seen significant efficiency improvements.

The Building Control Department (now the Building and Construction Authority) was the clear leader of this initiative, and its leadership and the engagement of all stakeholders from the beginning were key elements of reform success. Subsidies to update IT capabilities and help desks and several seminars and workshops on technical assistance were fundamental in bringing building professionals up to speed on the system. After providing all this support, the government made online submission of processes and plans mandatory: no paper documents were permitted. This was necessary to induce the private sector to fully utilize the new system and to achieve real efficiency gains by avoiding a parallel paper system.

One of the most valuable lessons from Singapore's experience is the importance of reorganizing the approval process before adopting IT solutions. Authorities met with the private sector and with the technical staff of each of the agencies to look for synergies and to create common standards to improve communications and information-sharing protocols among them. Only after this effort was the approval process automated.

(continued on next page)

Box 8.1 *(continued)*

UNITED KINGDOM

Public-Private Competition in Building Control

In an effort to provide builders with more choice and to stimulate competition, the United Kingdom has gradually opened up more opportunities for private-sector inspection agencies, known as approved inspectors. To compete with the private inspection agencies, some local building authorities have entered into partnerships with other local authorities, pooling their technical resources.

The introduction of the private-inspection option and, in particular, the expansion of private inspection in 2007, have resulted in more customer-focused, faster service. Competition among private-sector building control firms has stimulated innovations in public- and private-sector corporate organizations. In the private building control sector, competition has led to the coordination of building control and warranty inspections by firms offering both services. In addition, some corporations offering building control also provide expert design advice on matters such as fire service.

The U.K. experience also shows how difficult, perhaps impossible, it can be to establish a level playing field between public- and private-sector building control bodies. The two building control and inspection systems never really compete on equal footing.

VICTORIA, AUSTRALIA

Competitive Building Control—Clarifying Roles, Ensuring Performance

Much like the United Kingdom, Victoria decided to give builders a private-inspector option. To implement this option, Victoria's reforms included mandatory practitioner certification of designers, contractors, and public- and private-sector inspectors.

Lack of effective government monitoring of private surveyors, however, has left the system open to the criticism that it fails to protect the public by ensuring safety, competence, and compliance with the Building Act. Local government councils currently have no systematic review process for permits lodged by private building surveyors. Many local governments are unsure of their role in dealing with private surveyors, sometimes resulting in building works that do not meet basic standards. Consequently, the system needs further clarity on the role of local governments in dealing with private certifiers.

A key lesson to be drawn from Victoria's experience is that greater reliance on private-sector inspections and on private practitioners' compliance with regulations must also involve greater clarity regarding roles and responsibilities and additional performance auditing.

CASE STUDY: A CAUTIONARY TALE

New Republic and the Price of Secrecy—Uncertainty and Additional Risk[26]

For a country newly transitioning from a command-and-control regime to a market economy, land privatization and building control reform can be a slow, halting, and challenging proposition. New Republic, the focus of this tale, was saddled with a bureaucratic, ineffective, out-of-date land-use plan. But the most burdensome trace of the past its officials had still to deal with was secrecy.

Although New Republic introduced some streamlining initiatives, its construction permitting process remained excessively complex and discretionary, leading to uncertainty and, even more of an impediment, to a lack of transparency, particularly with regard to planning documents. This was in stark contrast to all best-practice jurisdictions worldwide, which make land-use planning information and related planning documents readily available to the public. In Vienna, Boston, and many other jurisdictions around the world, planning information is available on local government websites. To establish an effective system of private-sector land development in which private developers are empowered to make rational decisions and avoid excess risk, New Republic needs to make its land-use and planning-related information fully transparent and to bring it up to date. This New Republic has found it difficult to do.

Before Reform

Land allocation remains embedded in the construction permit process

Under the old regime, New Republic's construction permitting process, the system for reviewing construction and assuring its compliance with applicable regulations, had been embedded in the land allocation system through which state-controlled land was released to builders. This did not change with the turn to a market economy. The tie between land allocation and building control was meant to ensure that developers did not hold land vacant as a speculation and to compensate for the secrecy and datedness of planning information by releasing land in a context that enforced compliance with land-use policies, zoning, and infrastructure constraints. With planning information kept secret from the developer and from many government agencies as well, land allocation and building approval became a long, multistage game that developers were forced to play—without knowing the rules. Without planning information, development is essentially a roll of the dice.

Secrecy leads to a highly bureaucratic permitting process

New Republic's land-allocation and construction-permit system includes three phases: land selection, land allocation, and construction/acceptance. Estimates of the total number of procedures embedded in this system, identified in research undertaken in July 2011, are between 45 and 53, depending on how they are grouped. Box 8.2 provides an overview and some examples of the system's structure.

[26] The circumstances, trends, and choices ascribed here to New Republic and to its Capital City, derive from those of an actual transitioning economy, unnamed out of consideration for its ongoing reform efforts.

Box 8.2 Key Elements of the Land Allocation and Permitting Process in Capital City, New Republic

Phase 1: A Selection of Land Selection Procedures

- Application to build on a particular parcel of land selected by the builder
- Start of "clearance" or "applicable law" review (continues to Phase 2)
- Allocation commission approval of land selection
- Preparation of"materials for selection"
- Review by Capital City`s "Master Plan Organization" (reviewed against Official City Plan)
- Mayor approves "materials for selection"
- Create formal "package for allocation"

Phase 2: A Selection of Land Allocation Procedures

- Terms established for building design, connection to water, sewer, geodesic maps
- Architectural objectives received from building control authority
- Owner prepares preliminary design
- "Facade approval" (building architectural approval) by a planning committee
- State agency review of building design
- Request for "environmental impact assessment"
- Technical review of building designs by regulatory authority
- Application for "Phase 2" allocation of land
- Formal package to "District Allocation Commission"
- After mayor`s approval, documents go to "Republic Commission"
- Cabinet of Ministers reviews application
- Registration with cadaster (but with grounds for refusal)

Phase 3: A Selection of Construction/Acceptance Procedures

- Owner applies for building permit to start construction
- Owner requests inspections and seeks utility connections
- Owner establishes "Working Commission for Final Inspection"
- Acceptance of construction by local authority
- Acceptance of construction by State Acceptance Board (acceptance by all agencies)
- Issuance of building permit
- Registration of construction

Source: The authors.

As Box 8.2 illustrates, New Republic's allocation and permitting process is long, complex, and riddled with uncertainty for the developer. Moreover, as has been noted by the Chamber of Commerce, the building industry cannot anticipate the course of the application, because the government has not made available a process map or guidelines for the overall building control process.

Building development is highly discretionary and bureaucratic

Building control processes in best-practice jurisdictions seek to reduce uncertainty and risk by addressing the needs of both the private sector and the regulatory authorities. To a large degree, this is best accomplished through transparency. These jurisdictions make land-use plans available online or at local municipal offices, and infrastructure information and the requirements of other clearance agencies are both readily available. The developer minimizes risk by ensuring compliance with planning and clearance agencies before applying for a building permit.

Because of continuing planning secrecy in New Republic, some developers complain that they discover late in the allocation process that they have inadvertently made a bad land selection. This happens when the developer's guess as to government planning and infrastructure turns out to be wrong. In one case, for example, a developer discovered after detailed technical plans had been developed that costs for electrical connections would be comparable to construction costs. Developers note, too, that the best land parcels seem often to be reserved for those with good government connections, who also seem to have a higher chance of developing land with the appropriate use; that is, they are more likely to acquire and develop plots along lines that accord with the government's ultimate land and resource planning.

The land approval and building control process in New Republic is bureaucratic throughout. At the very end of a long process, builders must establish and submit documents to a Working Commission for Inspections composed of authorities already involved in the approval process. After the commission has completed its work, the documentation goes to the State Acceptance Board, and if accepted by them, it is then registered with the real estate cadaster. At this point, builders and regulators can consider the process complete.

Government concerns about land speculation

Although the country has been transitioning to a market economy, with significant privatization of state land, strong resistance persists to privatizing land where the new owners have no immediate plans to build. Such speculation is seen as a means for property owners to profit through no effort of their own.

Yet speculation arises from uncertainty and from the inherently dynamic nature of the building process in cities and is thus a normal element of a market economy. Because land-use and infrastructure information are kept secret, uncertainty for most builders is very high. The land allocation process in Capital City and elsewhere in New Republic is highly speculative. Uncertainty would be much reduced if transparency were greatly improved.

Government concerns about public-sector investment costs

One of the reasons offered for New Republic's nontransparent planning system is that property speculators would inflate the cost of property required for public-sector infrastructure. This is a legitimate concern, but other remedies exist for this problem. Regulations and protocols for expropriation and compensation in market economies are well established and provide an easily adopted model for transitioning economies. These approaches are generally based on property values established before infrastructure plans were known and therefore provide an equitable way to achieve public-sector investments in a market-based economy without providing a windfall for speculators.

Some building industry stakeholders in New Republic have argued for the introduction of an open land auction process, together with transparent and up-to-date planning, similar to that in Dubai. Macedonia's transitioning economy also seems to have an effective system for auctioning state land to private-sector buyers. Georgia, Armenia, and Ukraine all appear to have more transparent systems.

Key Reform Goals and Measures

New Republic initiated a number of changes to improve its regulatory system, including establishing a one-stop system for dealing with clearing agencies and creating increased opportunities for preconsultation with regulatory agencies.

Building approvals not tied to land allocation

The reforms undertaken by New Republic have not addressed the main problem: lack of transparency in land-use planning. Many in government familiar with the old command-and-control economy in which there was no private sector and where bureaucratic efficiency was unimportant, do not see transparency of government regulations and policies as essential to an efficient private sector. New Republic has nonetheless undertaken some regulatory reform initiatives, and its public sector appears genuinely committed to achieving good outcomes in public health and safety, environmental protection, city planning and urban design, and other important objectives.

Some measures New Republic has taken to improve the permitting system include establishing a one-window or one-stop system for distributing applications to relevant clearance agencies and providing preconsultation services for developers and builders.

The one-stop shop system and legal time limits

One-stop systems can improve the ease and transparency of permitting system, but the one-stop shop must be recognized and incorporated throughout the system. In New Republic, decisions on clearances have not been delegated to the one-stop shop. These decisions continue to require experts, information, and decisions linked to the main authorizing agencies.

The government also tried to improve approval times through use of statutory time limits: a resolution of the Cabinet of Ministers set a time limit of seven working days for building approvals. As shown by data collected in the *Doing Business* report, however, this time limit has not been applied in practice. Improving processing times will require high-level focus on enforcement.

Developing preconsultation services

Some effort has been made in New Republic to provide opportunities for preconsultation with builders. To be effective, however, preconsultation must be rigorously planned and dedicated staff must be trained to address requests efficiently and to provide meaningful advice in a timely manner. So far this approach has yielded few results due to the limited resources allocated to it.

Outcomes Achieved

The reforms introduced to date have not adequately addressed the transparency problems facing New Republic's building regulatory system. Several developers consulted in Capital City, for example, argue that it is more efficient to go to the agencies directly rather than to the one-stop shop, which takes the application, transfers it to the clearance agency, and then brings back a reply to the builder. Developers and builders in other New Republic jurisdictions have made similar comments. Clearly, the reform does not work; on the contrary, it adds yet another layer to the building-approval process because builders must go to the one-stop center but also to each agency to obtain the needed approvals. And, as mentioned above, limiting processing times for building permits has also not worked for lack of enforcement. Given the problems facing New Republic's builders and investors, reforms to date have been minimal and largely serve only to maintain the status quo.

The building industry's general impression is that some minor efforts at improvement have been made and that the government has demonstrated somewhat greater support for preconsultation and a one-stop shop, but that the main problems have not been addressed. The absence of transparency in land-use planning remains a major concern for most in the building industry. The absence of information about the overall building-permit process is another area of concern. The Chamber of Commerce strongly advocates for transparency in both areas. The sentiment in the country is that most in the building industry are being asked to play the game without knowing the rules.

Lessons Learned

Improved transparency is a key first step to improving the building control process

New Republic has one of the least transparent planning systems among transitioning economies. This lack of transparency has contributed to a much more complex building-permit process than in other jurisdictions; uncertainty for developers and a chill on investment; barriers to entry; a reduction in competition and quality of development; and insider advantages.

Many jurisdictions around the world have improved transparency in recent years. Some of the best practices in this regard include making land-use plans available to all citizens and placing them online; developing process maps or guidelines for the entire construction permitting process; and providing clear guidelines on complete application requirements. Vienna, Austria, for example, has put many of these actions into practice. Authorities have put all planning information on a web-based, GIS platform where developers and citizens can, for a subscription fee, view current land-use and zoning plans, including plan land-use policies, zoning, and infrastructure capacity and availability.

Secrecy is not the solution to curb land speculation

As noted above, New Republic's building control system keeps planning information secret and requires investors to develop land parcels immediately out of concern that investors will otherwise gain a windfall if the government needs to expropriate land for public purposes. Most market economies must deal with land expropriation and compensation when governments purchase land for public purposes, such as roads, transit services, public buildings, and so on. In best-practice jurisdictions, expropriation and compensation are generally based on land values that existed prior to any price escalation for the land in question attributable to any land development plans for infrastructure purposes.

These expropriation and compensation methods and principles are well established worldwide and can be applied in New Republic. Its current system of secrecy creates the perception that speculative windfalls are available only to those with knowledge of secret planning and land-use information.

The one-stop shop must be carefully implemented

New Republic's present one-stop–shop system does little more than circulate applications to clearance agencies. The one-stop shop cannot issue decisions, since those are the province of the agencies' technical and documentation experts and authorities. Developers usually find it more productive and efficient, as well as faster, to visit the clearance agencies directly and discuss their applications with the key decision makers there.

The one-stop shop represents a best-practice solution that can coordinate clearance agency activities, fostering internal coordination and communication among them with respect to long-term planning, operational issues, and more complex development applications. One-stop shops, however, although always well intentioned, may not always be successful. If not implemented correctly, they could add to, rather than streamline or eliminate, building clearance procedures.

CASE STUDY: AUSTRIA

First Build a Solid Foundation, Then Streamline the System

Prior to the 1990s Austria's building regulatory system was far from efficient, but since that time the building regulatory system has evolved gradually in several areas. Local land-use plans were generally not up to date or readily available to developers, and building code enforcement relied on inspections by Austria's local municipalities. To reduce discretion and improve efficiency in the building-permit process, the authorities sought to improve transparency by updating and publishing land use plans.

Before Reform

Traditional building control systems relied on local building authorities

Before the mid-1990s, building code enforcement relied on inspections by Austria's 2,400 local municipalities, some of which delegated responsibility to the approximately 70 regional authorities. Almost all work required a construction permit, and no distinction was made among low-, medium-, and high-risk projects. Delays inevitably resulted where the demand for permits exceeded local capacity. For more complex projects, local authorities relied on inspectors in provincial or regional offices.

Outdated land plans made the approval process cumbersome

Before the mid-1990s, two approvals were needed to start construction work: a planning permit and a building permit. Land plans were not very transparent, thus planning authorities could not share planning information with the municipal authorities. As a consequence, builders needed to go to two different offices to get two different approvals. This added an additional but avoidable procedure to the process.

Key Reform Goals and Measures

Making planning regulations more transparent to enable the one-permit system

In the 1990s, land-use plans at the regional and local level were updated and, in the spirit of more transparency, were made publicly available for use by local authorities in establishing compliance with local planning and zoning requirements. The development of good regional and local plans took some time, but by early 1990 most of Austria was covered by up-to-date local plans; upper Austria had such plans by 1995.

Once local authorities had up-to-date land-use and zoning plans, they could devolve responsibility for confirming planning compliance to the local authorities. The local departments responsible for issuing building permits then could determine compliance with local planning and zoning requirements, and the one-step permit became feasible. For more complex projects, a developer still had to go to the local planning department for review and approval before going to the local building department for a building permit. But for simple projects for which compliance with local zoning and planning requirements could be easily determined, the developer could go directly to the local building department for a building permit.

Going online to enhance efficiency and transparency in Vienna's planning process

Currently, all planning information for Vienna is available online. The official plan and all related planning information is in a digitized, GIS-based electronic format that allows developers

and citizens, for a subscription fee, to view current land-use and zoning plans. In addition, information on the location and capacity of infrastructure, such as water and sewer systems, is also online. The system thus provides different kinds of relevant planning information in several layers, from official plan land-use policies to zoning and infrastructure capacity and availability.

Introducing risk-based differentiation for building inspections

Prior to the reforms, a building permit was required for almost any work. In the 1990s, changes were introduced to distinguish between lower- and higher-risk projects. As a result, three classes of construction were introduced:

- *First Class.* Projects exempt from building permits and any planning or zoning review. These are very small extensions or other very small construction works.
- *Second Class.* Construction works up to 20 square meters that do not require a building permit and are not subject to technical review. These projects are subject to planning review, however, and a signature must be obtained from neighbors to ensure they have no objections to the project. No planning meetings are required. If neighbors voice no negative views, the project is deemed to be approved.
- *Third Class.* These projects require a building permit with full third-party review of all crucial building elements.

A subcategory within the third class of construction permit is the *light procedure*. Buildings in this category include those up to 200 square meters and up to 25 meters in height in some provinces; in other provinces even larger buildings, up to 600 square meters, fall into the light procedure category. Generally, buildings of the light procedure type require minimal or no independent review of building design or construction. In Vienna the only requirement is a building structural review. Although notifications at certain stages of construction are required, inspections during construction are the exception rather than the rule.

Complementing the risk-based approach with private inspectors and qualification standards for construction professionals

In general, the building regulatory system in Austria does not rely heavily on inspections by independent or third-party inspectors; rather, it relies more on the professionalism, knowledge, and competence of the building designers and contractors. For buildings in the first and second classes, notifications at certain stages of construction are required to inform the authorities that they could inspect, but inspections are rarely carried out. For residential buildings, inspections during construction are the exception rather than the rule.

A completion certificate is issued when the building is complete to confirm that all components were completed in accordance with requirements. Overall the system in Austria can be described as one in which the focus is on "licensing the builder rather than licensing the building." The role of independent inspectors is to audit and to ensure the safety of selected high-risk components for higher-risk buildings.

Complying with safety standards by maintaining a robust licensing system for designers and contractors

Although inspections have been substantially reduced since the 1990s, the system for designer and builder licensing has remained relatively unchanged. By far the most crucial feature of the building regulatory system in Austria is the heavy reliance on designers and contractors

to ensure building safety and compliance with building codes. This reliance on practitioner licensing is very important, since inspections and independent review of construction, as noted above, are either nonexistent or very minimal.

To help ensure that designers and contractors can be relied upon to protect public safety and to comply with building codes, Austria`s building regulatory system has two important features: first, all buildings with the exception of certain smaller, low-risk buildings, must be designed by a professional designer and constructed by a master builder; and second, professional designers and master builders are subject to a very robust licensing system. The strong licensing requirements include examinations for both designers and master builders and are part of the Austrian tradition, shared with Germany. Austria has two categories of licensing:

- *Master Builder.* The master builder initially learns as an apprentice and then must pass a rigorous exam; candidates for master builder can also go to technical school or a university organized by the contractors association and the provincial government.
- *Professional Engineer.* Engineering firms typically have 5 to 10 employees. Aspiring engineers must gain some experience in such settings and then pass a relatively tough exam developed by the chamber of engineers.

The licensing system in Austria extends to subcontractors who must also be licensed. It is the responsibility of the master builder to ensure that licensed subcontractors are used.

While qualification requirements for practitioners are robust, insurance is not compulsory for registration with the Chamber of Engineers. This reflects the somewhat less litigious nature of Austria and many other European countries as compared to the United States and Canada.

Outcomes Achieved

The new inspection system maintains the professional standards of building professionals

The liberalization of the system in Austria did not extend to the robust licensing system of master builders and designers: that part of the system remained intact. The strong designer- and builder- licensing system was recognized as the foundation of the Austrian building system.

More transparency means more streamlining and less discretion

Measures to improve transparency have also improved the overall system. As noted above, regional and local land-use plans have been updated and made available online. Transparency improves efficiency by enabling developers to plan in accordance with local land-use plans, avoiding unpleasant surprises, and it enables government authorities to coordinate their reviews and approvals more efficiently. Transparency also reduces corruption by reducing unnecessary discretion.

Lessons Learned

License the builder rather than the building

In Austria, the building regulatory system is based on a solid foundation of designer and contractor professionalism. The philosophy in Austria, and in Germany as well, is to license the builder rather than the building. Under Austria's building regulatory system, all buildings, even houses, must be designed by professional designers and must be constructed by master builders. The master builders must in turn engage licensed subcontractors. Both designers and master builders are heavily regulated and subject to tough entrance exams.

A system that relies on highly qualified designers and contractors has inherent efficiencies because these two practitioners have the most direct contact with the work: the designer prepares the plans and the contractor undertakes the construction. The liberalization of the Austrian system focused on inspections. The main change was to target higher-risk areas for inspections viewed essentially as audits. This approach to liberalization was possible because the regulatory foundation, based on robust designer and contractor licensing, was already so strong.

Possible downsides to the Austrian approach

The ability to ensure an appropriate supply of building professionals could be a problem for Austria's system in the future. The Austrian system depends heavily on market-entry control, allowing only highly qualified persons to participate in design and construction activities. Market-entry controls pose a risk if building activity increases or professionals retire without being replaced. If the supply of professionals cannot be increased quickly or the number of new entrants is inadequate, bottlenecks can occur.

Similar risks exist, however, in systems dependent on highly professional inspectors to review designs or construction. That profession, too, can experience supply elasticity issues. Systems that rely on either highly professional designers and contractors or professional inspectors require strategies to deal with supply. Some of these include having a surplus of professionals (designers, contractors, or inspectors), with under-employed professionals available for peak demand periods, or having a supply of geographically mobile professionals who can move from areas of surplus to areas with a labor supply deficit. Building regulatory systems that depend less on professional designers, contractors, or inspectors do not have the same supply or bottleneck issues, but they of course have other inherent inefficiencies. The U.K. system, for example, focuses on controlling the building rather than the builder. Anyone can design and construct a building in the United Kingdom, without state control, but the state does restrict building approval and occupancy pending approvals. (Some restrictions apply to inspector qualifications, as well, but they are not very severe.)

Build regulation on a foundation of professionalism and transparency

A strong foundation of transparency and professionalism can improve any regulatory system. Increased transparency improves developer and builder engagement, thereby increasing efficiency, and it also reduces public-sector discretion and the potential for corruption. Transparency and professionalism are not easily amenable to quantification, but if present, they support a much more effective and efficient building regulatory system.

CASE STUDY: COLOMBIA

Private Help for a Public Problem—Colombia's Journey into Private Approvals

In 1995 obtaining a building permit in Colombia's capital, Bogotá, was burdensome and exhausting. Construction companies had to wait 1,080 days, on average, to obtain clearances from the city's Planning Office.[27] Bogotá's Planning Office was understaffed and unable to keep up with demand, making it very difficult for construction professionals to develop their projects. The only way to expedite the process was through personal connections in the municipality—an unfair practice inherently prone to corruption.

Colombia introduced a new system in 1995, moving the administration of building permits out of the state-run planning office and into the private domain. Private professionals, called *curadores,* became responsible for the complete and timely review of building-permit applications. By 1996, the system of private *curadores* was up and running. Additional legislation in 1997, 1998, 2006, and 2009 further defined the *curadores'* roles and responsibilities. Seventeen years after its initial implementation, the system's impact on the construction process is perceptible: shorter waits for construction permits, a risk-based approval system, an online verification platform, and a city Planning Office with time to focus on urban improvements such as new parks, sidewalks, and a mass transit system.

Before Reform

Long waits in Bogotá

Before 1995, building in Bogotá was a daunting task and an inefficient process. A crowded, underequipped, understaffed Planning Office did not have the means to process permits at a reasonable pace. Building approvals were not categorized based on risk, and electronic verification of preconstruction authorizations was not even being considered. Regardless of the complexity of the project, builders had to wait almost the same length of time for approval and needed to visit several offices to collect documents.

The time issue was the most pressing. Professionals waited for hours in long lines to apply for a permit and then had to follow up constantly to track the status of their applications. Waits for approval, as noted above, averaged 1,081 days—approximately 3 years! As a result, projects could not be financed properly, and customers who did not want to wait that long had no choice, from a practical business perspective, but to contact an insider for help. Small builders were particularly disadvantaged by this system since they typically lacked the clout to advocate successfully for their projects. Only big companies were granted licenses within a reasonable amount of time.

Key Reform Goals and Measures

The will to change

Colombia's central government, Bogotá's city government, and the private sector were all very interested in reforming this inefficient process. The cooperation ofthe municipal government was particularly important since local authorities were typically reluctant to give up power to

[27] This case study is based on information from the Cámara Colombiana de la Construcción(CAMACOL), Colombia's Association of Builders. The period covered predates Doing Business surveys, launched in 2003.

a national agenda. Bogotá's case, however, was different for three reasons. First, the local government realized that its Planning Office was not equipped to handle the demand placed on it and that the only way to remedy this was to invest significant resources. Second, the local government wanted its Planning Office to be more involved with the city's broad urban design concerns and less involved with administering and issuing permits. Third, the local government knew that long administrative delays translated into lost tax revenues for the city.

Add it all up and clearly municipal budget constraints were a key driver of reform. The city simply did not have the resources to hire new staff, upgrade its Planning Office, or take other measures to improve the building-permit process. Private help for this public problem seemed to be the right solution.

Decentralization by collaboration

Four years before the 1995 construction reform, Colombia had adopted a new constitution that clarified the principle of "decentralization by collaboration."[28] As a result, policy makers could more easily shift some responsibilities from the public sector to the private sector if public and private interests aligned. Colombia's previous constitution, dating from 1886, lacked any reference to using private institutions to carry out public duties,even though private notaries and chambers of commerce performed public duties such as civil weddings and deed and business registrations. The clarifications in Colombia's 1991 constitution thus gave the government a green light for more collaboration with the private realm.

In 1995 Colombia became the first country in Latin America to privatize its review and issuance processes for building permits. It was a bold move, carrying many risks, but Colombia's public and private stakeholders knew that the situation was desperate and called for a far-reaching and innovative solution. Colombia's privately run chambers of commerce and its notaries provided the government with home-grown models for the seemingly radical idea.

Private leadership

Decree 2150 of 1995 legally established the title *curador,* indicating a private individual with public responsibilities to administer building-permit reviews and to issue permits. *Curadores* set up shop and were in full operation by January 2, 1996. Given the initial pressures to implement the reform, Bogotá's mayor first appointed five ad-hoc *curadores,* all architects or engineers with construction experience. Soon after, a more transparent, merit-based system was established that remains in force today. Potential *curadores,* still five in the case of Bogotá*,* now pass through a selection process that includes exams and interviews with experts from the public and private sectors. In the rest of Colombia, by law, every municipality with more than 500,000 inhabitants appoints at least two *curadores*. Municipalities below this threshold continue to issue building permits through their planning offices.

Collaboration by local and national authorities and the private sector was key to the creation and implementation of the new system. Also crucial was CAMACOL's leadership in facilitating communication and fostering cooperation among all parties involved.

[28] Descentralización por colaboración.

Outcomes Achieved

Better, faster services and more construction activity

Response to the new regime from construction professionals has been positive so far. *Curadores* have very professional staffs that interact efficiently with builders. This improves not only the quality of the technical reviews and approvals but also makes the process much faster. Before the reform, construction companies dealing with the Planning Office rarely interacted with the actual authorities reviewing their cases. If documents were missing, or if something needed to be corrected, the wait could be daunting. In contrast, builders can now submit documents and then follow their progress online. A case management system keeps customers current on the status of their permits. Furthermore, since customers in Bogotá can bring their business to any one of the 5 *curadores*, competition tends to generate innovative, quality services.

Bogotá's Planning Office now focuses on its intended mission of urban planning. As a result, big urban projects in the city, such as the construction of many public parks, sidewalks, bike lanes, and a successful mass transit system, have been completed in the last 10 years. The permit numbers tell a positive story, too. In 1996, 11.3 million square meters of construction were approved. In 2011, after the advent of the *curadores*, this number had climbed to 23.7 million square meters—more than double.[29] In another measure of success, the construction sector's share of the country's gross domestic product (GDP) was 6 percent (US$6 billion) in 1996, but it had grown to 7 percent (US$21 billion) by 2010.[30] Finally, in 1995, obtaining a building permit took an average of 1,080 days—approximately 3 years; by 2012, this wait dropped to just 33 days[31]—an average time savings of about 2 years and 10 months.

Curadores keep pushing for more reforms

One of the main advantages of the *curador*-based system is the incentive it gives these professionals to expedite approvals: efficient approvals improve their earnings. For this reason, along with CAMACOL, the *curadores* have led the way to further reforms. Before 2009, Bogotá's builders made several office visits in their attempts to obtain a building permit. Separate certificates and approvals had to be obtained from each of the Chamber of Commerce, the Land Registry, and the municipal tax office. At the same time, the approval process did not vary by building type, size, or potential impact. To help smooth this process, Law 388 of 1997 gave *curadores* a 90-business-day limit for issuing or rejecting a permit.

Before 2010, obtaining a building permit involved unnecessary physical interactions and manual information verification systems. The *curadores* and CAMACOL worked with local and national authorities to create a new system, instituted through Decree 1272 in 2009[32] and Decree 1469 in 2010.[33] These established that for cities with more than 500,000 inhabitants (Bogotá has almost 8 million), verification of documents required to obtain a building permit can be done electronically when systems are available. This improvement was very important for the *curadores,* some of whom could already verify some documents electronically although the law required that they continue to review hard copies by law.

---

[29] Departamento Nacional de Estadísticas (DANE); www.dane.gov.co.

[30] World Development Indicators (WDI), World Bank.

[31] *Doing Business 2012*.

[32] http://web.presidencia.gov.co/decretoslinea/2009/abril/16/dec127216042009.pdf.

[33] http://web.presidencia.gov.co/decretoslinea/2010/abril/30/dec146930042010.pdf.

The first document the *curadores* requiring verification established whether the building company was registered properly. Before the reform, builders needed to go to the Chamber of Commerce and obtain a copy of a certificate stating that their company did exist and was allowed to engage in construction projects.[34] CAMACOL helped reach a deal with the Chamber of Commerce that allowed *curadores* to verify a company's status online. Similarly, in the interest of improving the efficiency of the building-permit process, the municipality allowed the *curadores* to verify online whether a land plot had pending tax charges. With this check builders no longer needed to go to the Municipal Tax Office to obtain this certification.[35]

The last document that builders needed to apply for a building permit was a land certificate showing the name of the plot's owner and whether the plot had pending mortgages or disputes.[36] Linking their systems to that of the Land Registry was more cumbersome for the *curadores* than the other two institutional connections had been because many Land Registry records were in hard copy and the digitization took some time. But by June 2010 *curadores* were able to connect directly to the Land Registry.

Not all buildings are created equal. Controls and levels of scrutiny should vary depending on the building's complexity, potential impact, and purpose. Such specificity allows authorities to focus their often limited resources on projects that represent higher risks for public safety. Approval times and review protocols for simple residential or commercial buildings should be very different from the ones used for complex chemical plants, skyscrapers, or large commercial structures.

Decree 1272, discussed above, categorizes construction projects according to risk. Under this law, depending on the size and purpose of the building, projects are assigned one of the following categories: high complexity, medium-high complexity, medium complexity, or low complexity. Less complex projects undergo a faster approval process, whereas before the reform all buildings had the same time limits.

More transparency

Decree 1272 of 2009 also established a system for evaluating and scoring *curadores* according to their performance, including services offered, permits approved, time for approvals, and others. This assessment is useful because *curadores* must compete for their positions, and the points received in this evaluation are crucial for their reelection.

The decree also established a new time limit within which *curadores* must respond to complaints made by third parties. After a complaint is submitted, the *curador* has two months to resolve the issue. If it fails to respond within this period, the complaint will be dismissed[37] and the construction project allowed to continue without further disruptions.

[34] Certificado de existencia y representación legal.

[35] Paz y salvo de impuesto predial.

[36] Certificado de libertad y tradición.

[37] Silencio administrativo positivo.

Lessons Learned

The first *curadores* needed more training and preparation

Despite the benefits mentioned above, the *curador* system has room for improvement. Their introduction, for example, although well intentioned, was precipitous. At the end of 1995, all construction permits were issued by the Planning Office, but by January 2, 1996, all construction permits were issued by the new private players. The quick change confused some applicants, who were not prepared for the new system. Furthermore, some new *curadores* were not prepared themselves. Future reformers should consider a more aggressive communications campaign and a pilot program to train the new *curadores*.

Curadores require supervision by a centralized and specialized agency

Another area for improvement is government oversight. Because they perform a public service, *curadores* are subject to government oversight, but the law does not specify the part of government responsible for it. *Curadores* complain that multiple agencies (national and local) ask for the same kinds of documents and the same information. Furthermore, government regulators may not be sure what to ask *curadores,* because they are not specifically trained to deal with construction.

Redundant oversight is not only unpleasant for *curadores*; it is also confusing for the public. For the sake of transparency and efficiency, the public should know exactly where to go with complaints. Therefore, a better articulated set of rules should be enacted for *curadores*, as it was for notaries. Colombia's Notaries and Registry Superintendence[38] is a centralized and specialized oversight system that could provide a model here.

Authorities should create rules and incentives to avoid discrimination against small projects

To improve system checks and balances, revised fee schedules should be considered. *Curadores* currently set their fees according to the size and complexity of a project, with bigger projects paying larger fees. As a result, some builders complain that smaller—less lucrative—projects don't get enough attention. In 2010 the five *curadores* in Bogotá created a pool of small projects to be shared evenly among them. This is a good initiative, but it is only an ad-hoc solution. Authorities should learn from this initiative, however, and create a more stable framework for dealing with this problem.

[38] Superintendencia de Notariado y Registro.

Authorities should consider implementing similar reforms for inspections

Currently, building inspections in Colombia are not robust enough. Inspections during and after construction are the municipalities' responsibility. In Bogotá, for example, the responsibility falls to local prefects,[39] but these individuals lack the technical and financial resources to conduct professional inspections. In practice, local prefects only conduct inspections when a complaint is filed, and even then the inspectors often are not qualified for this important task. To correct this and to improve building control, authorities should consider creating a system similar that of the *curadores,* with private, independent, accredited professionals made responsible for conducting the necessary inspections.

Privatization should be implemented only when adequate accreditation and liability systems are in place

Privatization is not always the answer. First of all, a thoroughly professional and independent private sector is necessary for this type of reform to work. Government or independent organizations should certify and evaluate those placed in charge of issuing building permits. In addition, a robust insurance system and a comprehensive oversight plan is needed. Careful coordination and communication between the public and private sectors will helpensure smooth implementation.

But when the conditions call for it, public authorities can and should ask for private assistance to ease the burden of administrative procedures. If well designed and supported, privatized public services can improve services without draining public resources. In Bogotá, moving the issuance of building permits from the Planning Office to the private *curadores* improved the timeliness of service without compromising quality and security standards. It also freed up the Planning Office to focus on its original task of urban planning. Some aspects of this reform can and should be improved, but clearly the use of *curadores* has had a very positive effect on Colombia's construction sector, contributing to significant streamlining of the permitting process and to growth in building formalization.

[39] Alcaldes menores.

CASE STUDY: FRANCE

Private Liability and Insurance as the Main Drivers to Promote Compliance with Building Standards

In 1978, France introduced significant changes to its system of construction-safety control. Since 1804, the French system had been based on a 10-year liability rule for builders, with very limited state involvement in building inspection. Prior to the reform, however, this system had serious imperfections. In addition to being costly, owners found it difficult—sometimes impossible—to get compensation from builders for damages caused by poor workmanship and violations of norms. The reform introduced a more comprehensive system linking all the parties in the construction system. The state acts as a facilitator, but does not intervene frequently. The fundamental characteristic of the system is that owners, architects, and builders are all required to hold insurance covering potential damages. Most conflicts are settled directly between insurers without the need for court cases.

The approach delivers satisfactory results in terms of compliance with technical rules and building quality and safety. Safety indicators are comparable to those of other countries in Western Europe that have far heavier state controls and inspection regimes for building. Building quality indicators in France have also been improving over time. The system draws remarkable political consensus in France. Over 35 years, several small reforms have further clarified some elements of the rules on liability and insurance, but the general principles and system have remained untouched.

Before Reform

Compliance focused on professional liability

Since a reform in 1967, authorities grant construction permits based on zoning rules and their own priorities for local development and esthetic considerations; details on structural elements and techniques are not required in the permit application. Construction inspections by state agencies or municipal agents both before and after the reform were very rare. Construction was and is not "unregulated," however. A number of mandatory norms addressed safety and quality. The primary mechanism of enforcement was the 10-year liability rule for builders, enforceable through the courts if necessary. Builders had to repair or compensate owners for any damage that made all or part of the building unusable or unsafe before the end of this 10-year period. The foundations of this system were laid in 1804 in the original (Napoleonic) Civil Code, in which article 1792, still the core of building liability regulations, read: "If the building[40] constructed at the agreed price collapses, in whole or part, by a fault of construction (. . .) the architect and constructor shall be liable for it for ten years."

The 10-year liability rule requires a functioning insurance regime to ensure compliance

Before 1978, however, while builders, architects, and developers were legally liable for 10 years (or less for some specific parts of the work), full insurance was not mandatory. In theory, beginning with a 1940 reform and another in 1967, architects and builders had to hold

[40] The definition of *building* has gradually been refined to mean "closed premises in which people reside or work;" it excludes public infrastructure such as roads and bridges. Part of the regulations described here apply to such infrastructure, but not all.

insurance to cover their liability; but in reality many did not. This meant that many owners or developers had no recourse for building faults if builders or contractors went bankrupt or simply had insufficient resources to cover the damage. Even when builders were insured, owners often had a difficult time getting the insurance companies to pay up, leading to lengthy and costly court cases. In addition, many buildings were found to be of substandard construction, as owners and developers had insufficient capacity to really check the contractors' workmanship. The system was clearly dysfunctional, and reform was needed. The Spinetta Law, adopted in 1978 and entered into force in 1979, was instituted as a result. The system as it stands today still relies on it, with a number of further elaborations, none of which has really changed its essential structure.

Key Reform Goals and Measures

Making insurance mandatory for all parties in the construction process

The main change introduced by the Spinetta Law was the extension of the requirement to hold insurance on the construction process. After 1979, not only architects and builders but also owners (or contracting authorities) had to hold insurance against potential faults in construction. At its core, the system now relies on insurance companies to settle claims between themselves (avoiding litigation as much as possible) and to enforce some discipline on construction professionals in the form of higher premiums for those with a poor track record. The construction parties now required to hold insurance include the *maître d'ouvrage* (owner, developer, contracting authority); the *maître d'œuvre* (architect, engineering firm, primary contractor), in parallel the technical controller (see below); and all the building contractors.

All actual builders (whether firms or craftspeople) must hold insurance if they are hired directly by the *maître d'ouvrage* (subcontractors of the primary contractor are not required to hold insurance by law, although the primary contractor may request it). The owner's insurance covers against all damages to the building due to any cause (except natural disasters and similar events, covered by another specified policy), and the owner's insurer directly reimburses the owner for damages occurring within the 10-year period. This insurer then recoups the costs from the relevant liable party (architect, contractor, and so on) or their insurer. In the vast majority of cases, the process unfolds without intervention by the owner and without the owner having to wait or incur any additional costs or problems. It also typically does not involve a court process. Insurance companies mostly settle claims directly between themselves; only in exceptional cases, when conflicts arise as to the scope of insurance and liability, do these cases go to court.

Creating a system of third-party technical control for high-risk buildings

The second major innovation of the Spinetta Law was the introduction of mandatory technical control, performed by third parties. Before the reform, the construction process had no mandatory controls. After the reform, licensed technical controllers, not the state, undertake actual construction control. Technical controllers (licensed by the state) intervene at the request of the owner or developer (or contracting authority of whatever type). Their presence is mandatory for certain types of structures or locations, again according to risk level.

Technical controllers intervene to audit the detailed implementation plans developed by architects and contractors and submit a report to the owner. They regularly check the implementation of works and likewise report any issues to the owner (or developer or contracting authority). Technical controllers also bear liability, both civil and penal, along with the other stakeholders of the building process.

Reaffirming the risk-based approach for building safety

The Spinetta Law did not really change the system of control by state or local authorities. The fundamental characteristic of the French system remained: actual inspections by public bodies are rare and occur only for specific types of buildings or premises. The system was nonetheless progressively strengthened and clarified, in particular in 1980 (with the passage of the Safety Regulation for Establishments Receiving the Public) and in 1982 (with the E.U. Seveso Directive on high-hazard establishments). Further amendments were made in the 1990s and 2000s, reinforcing controls for the higher-risk facilities.

The level of control on building construction and occupancy is linked to risk level. The most hazardous buildings (such as power plants, chemical factories, and so on) are subject to a specific permit, in addition to the construction permit itself, that covers environmental and safety aspects; it is issued by a specialized directorate, with highly qualified staff: the Inspectorate for Classified Installations. Buildings that present no inherent hazard by their nature, but that can host large numbers of visitors or residents ("establishments receiving the public," such as hotels, stadiums, shopping malls, restaurants, and so on) are subject to a control visit before they can open. A safety commission, gathering firefighters, police, and local government, perform these visits. For larger facilities (occupied by more than 100 to 300 potential visitors at a given time, depending on the type) this safety commission visit is mandatory; for smaller structures (for example, most cafes and restaurants), mayors decide whether a control visit should take place before opening. No permit or control visits are required for other buildings (such as residences), which are subject only to the usual construction permits. The smallest individual houses are subject to the least control: the plan for the construction permit need not even be drawn by an architect.

Outcomes Achieved

Market-based reform reduced litigation and increased safeguards for owners and contractors

The system established by the Spinetta Law has now been working for close to 35 years. The authority to issue construction permits was transferred in most cases to municipalities, under the 1983 Decentralization Law, but this did not change the way control is exercised. Municipalities do not inspect construction sites. The system was further strengthened[41] and streamlined by a 2005 reform, which entered into force in 2007, introducing time limits for granting permits and a "silence-is-consent" rule.

[41] See the previous section regarding enforcement of the new risk-based approach.

The expected results of Spinetta reforms were reductions in conflict and litigation, better protection for owners and contracting authorities, and higher levels of overall building safety and quality. These goals have largely been met, with the vast majority of 10-year-liability cases handled directly by insurance companies between themselves. Owners are better protected, and the system is generally fluid and does not overload the court system.

High rates of compliance with building standards

Like standards in other areas, in France building "norms" (or standards) are developed and adopted by a commission composed of the relevant parties in the sector, including representatives of private companies and public institutions. It is led by a public institution, the Scientific and Technical Centre for Construction. These standards or norms are not, by themselves, legally binding documents, and they are not adopted by the government (or parliament). Strictly speaking, they are not automatically "mandatory." The legislation on construction does not always make reference to them (for instance, article 1792 of the Civil Code, even after its latest amendments, does not mention them).

In practice, however, these norms (called DTUs, that is, *Documents Techniques Unifiés,* "unified technical documents") are mandatory, some because they are specifically endorsed by government decrees but most simply because they are considered requirements within the framework of the 10-year liability and insurance coverage. Construction contracts between private parties may or may not specify the use of all or some norms, and they may even refer to foreign norms if both parties so decide. The use of French norms is only mandatory in contracts involving public contracting authorities (state or local authorities). The law, however, authorizes insurance companies to refuse coverage to architects, builders, contractors, and so on, if they have not followed "state-of-the-art" building practices. This means that if damage to a building constructed without reference to these norms occurs within the 10-year-liability period, the insurance company may refuse coverage, thus leaving the entire bill to the liable contractor. For all practical purposes, then, these DTUs/norms are mandatory for builders.

Without strict mandatory building standards the system incorporates more innovation

Technical norms are developed primarily by the construction industry itself (supported by public institutions, but these do not necessarily take a leading role). This reduces the cost to the state of their development and ensures that the latest techniques and the various economic perspectives are reflected. Because the norms are not strictly mandatory in private contracts, construction contractors may offer clients alternate technical solutions *more advanced* than the applicable norms; they may offer greater safety or reliability, for instance, even if at a higher cost. The contractor incurs no *legal* (that is, criminal) liability if a disregard of norms has no adverse effect on people. The consequences are only economic, in that if damage does occur, the insurance company may refuse to pay.

On the other hand, the courts are not bound by the technical norms, only by the law itself, which prescribes that the building has to be "fit for its intended purpose" and that the 10-year liability applies to such "fitness for purpose." Courts have repeatedly found that respect for current technical norms is not enough: the building must actually be built in such a way that it can be effectively used.[42] The definition of "fit for purpose" has also evolved, based on court decisions that acknowledge changes in technology and society and encompass new considerations (such as noise reduction, energy efficiency, and so on), without the need for legislative revision.

Reform success indicated by low costs and building safety

It is not easy to fully assess and compare the effectiveness and costs of different systems of regulation and enforcement of construction and construction safety. Most countries do not systematically maintain, or release, statistics on construction faults that do not involve loss of life. Even statistics on deadly incidents are not held in a similar manner in all countries. Estimating the costs of a regulatory system is likewise difficult because data on direct costs to the state (regulators and inspectors, associated buildings, equipment, and so on) are not easily obtainable. It is more difficult still to estimate costs for the private sector.

That being said, the results in France in terms of safety seem equivalent to the results in neighboring or comparable countries. The. ratio of deaths in fires, for example, is roughly similar throughout all Western European countries, France included, despite the very limited state intervention there in safety inspections. The costs for the state are comparatively limited given the absence of any large control apparatus such as exists in many other countries. Crucial safety requirements are observed in the majority of cases in France. Compliance with regulations on the height of railings and windows and with rules on fire-fighter access is between 80 and 90 percent, for example. These rules are considered by the ministry in charge of housing and construction to be potentially serious life hazards and subsequently to affect contractor liability.

Indicators on construction quality (that is, the percentage of buildings for which insurance claims are filed and subsequent costs for repairs compared to the total cost of the building) show a long-term declining trend of repair costs as a percentage of construction costs, going from over 4 percent in the 1990s to around 3.6 percent for buildings completed after 2001. That these figures are both overall low (less than 5 percent) and declining is a positive sign of the system's effectiveness in terms of quality.[43] The conclusion to be drawn is that the liability and insurance system may have gradually increased compliance among builders, including at the smaller end of the market. Private owners are most affected by faulty building practices because of their more limited capacity to supervise and the lower frequency of technical controls. Yet from 1995 to 2001, the total cost of repairs on individual housing decreased sharply, from 8.4 percent of initial building costs to only 5.7 percent.

[42] An example is the 2006 ruling that respect for norms on soundproofing was not sufficient if the building's location and characteristics meant this effort was insufficient to lower noise levels inside it to a level appropriate to its use. The contractors had to go *beyond* these applicable norms.

[43] Source Agence Qualité Construction; http://www.qualiteconstruction.com/observation/sycodes.html.

Lessons Learned

A successful reform balances efficiency and safety in a long-term effort

The 1978 reform is part of a longer-term effort to improve France's system of construction permits and regulations. The difficulty has been to find a way to reconcile two objectives: simplifying processes and ensuring quality and safety. In 1967, a major law on development and zoning was adopted. It organized the zoning process and linked construction permits to it. Thus issuance of permits was based only on compliance with zoning and on a multitude of technical requirements, as in previous legislation.

In 1969 and 1970, simplified permits, combined with a "silence-is-consent" rule, were introduced, but the procedures were not correctly designed and abuses were numerous. These procedures were abandoned in 1976. The 1978 Spinetta Law provided a more stable basis. Its success in ensuring safety and quality opened the way to further simplification. In 1983, most responsibilities for zoning and permitting were transferred to municipalities, and in 2005–07 simplified permits and the "silence-is-consent" rule were reintroduced.

The logic of this reform process has been to transfer responsibilities for compliance to private actors. Norms and standards are established, and the state has the power to enforce them, through courts in particular, but day-to-day control is not exerted through state inspections. Construction permits require only basic plans and no detailed technical specifications. Compliance is assured through the liability of private contractors, the provision for mandatory insurance, and the use of private technical controllers.

Good liability and insurance systems and efficient courts successfully reduce public interference

The French experience suggests that a construction regulation system can actually function with very minimal state involvement in control and enforcement—if a robust alternative is in place to ensure compliance. A strong insurance system fulfills this role in France, and it has proven to be a very important element in the success of the system.

Efficient, independent courts are also an important element. The court system has not only regularly ruled to enforce the constructors' and insurance companies' obligations, it has actually expanded them over time through widening interpretation of the "fit for intended use" clause of the Civil Code. Other countries such as Italy and Spain, also based on the Civil Code, have rules similar to France's 10-year-liability rule, but they are not as comprehensive or as securely linked to insurance and technical control legislation. France's system is to a point unique in this respect.

Flexible market-based inspection regimes increase compliance while lowering costs

Emphasizing the liability of private contractors may be a more powerful tool than state inspections in ensuring compliance with standards. Leveraging the power of the market can result in "bad" contractors having difficulty insuring themselves, or they may be able to do so only at a higher price. This factor alone may act as a stronger incentive toward responsibility and care than fear of fines or direct sanctions from a traditional state apparatus system.

CASE STUDY: REPUBLIC OF MACEDONIA

Transitioning from a Command-and-Control Approach to a Privatized System of Building Controls

Between 1944 and 1991, the People's Republic of Macedonia was one of six republics in the People's Federal Republic of Yugoslavia. In September 1991, Macedonia gained its independence. The building regulatory system in the new Republic of Macedonia shared many features with those of centrally planned economies. With the state controlling all land and land development, building construction was exercised by the state, with little involvement of local government or citizens. Since it submitted its application for E.U. membership in 2004, Macedonia increasingly turned to the models of western economies to plan a workable economic transition. Macedonia's bold building reforms, initiated in 2008, are particularly relevant to transitional economies: they demonstrate that drastic reform is possible when based on thorough revision of the roles and distribution of responsibilities of public building authorities and private building practitioners.

Before Reform

Transition from outdated Soviet-era regulation to European Union standards

Before reform, the building approval process in Macedonia, as was the case in many countries formerly part of the Eastern Bloc, was extremely complex and time-consuming for developers, requiring on average 21 procedures and 146 days to obtain a construction permit, according to the *Doing Business* report.

Prior to independence, lack of up-to-date plans and transparency meant little, since no outside private development plans had to be reconciled with public interests as reflected in land-use plans. Building regulations and standards were fragmented, and the absence of a modern building code made things worse. As Macedonia sought to transition to a market economy, its reform team placed a stronger emphasis on transparency with respect to government planning requirements and a partial privatization of building controls. This bold approach paid off, helping Macedonia's once centrally planned economy to transition toward a modern building regulatory system aligned with a market economy. The move, however, brought new challenges.

Key Reform Goals and Measures

Two waves of drastic and comprehensive reforms initiated in 2008 ended the old construction permitting regime marked by overwhelming state controls and a heavy bureaucracy. The vision for reform involved stronger alignment with E.U. practices, which required greater reliance on private building practitioners.

A larger role for private building professionals: mandatory licensing for designers and contractors

In an effort to improve building safety and compliance with generally accepted practices, the Construction Act was amended in 2008 to require building designers (engineers) and contractors to be licensed. Under these new provisions, only designers licensed in the appropriate category could submit designs, and only contractors licensed for the appropriate category could undertake building construction. Additional changes to the licensing system for designers and contractors,primarily aimed at reducing the number of license categories and

requiring licensed practitioners to carry insurance, were introduced with other amendments that took effect in 2011.

Private and independent review of design and construction by certified professionals

With the introduction of mandatory licensing, Macedonia sought to strengthen its system of using engineers for building design and review. Engineers and architects who design buildings, review engineers who undertake independent review of buildings, and construction engineers who undertake site review during construction are all required to be licensed by the Chamber of Engineers.

Engineering firms are identified as either category A or category B firms, indicating whether they engage in design or in construction review. Engineers undertaking review functions may also do design work, but they are not permitted to review buildings they designed. During construction, the Construction Act requires a licensed "construction engineer," independent of the contractor, to ensure that the building construction complies with approved plans. In short, after the reform, technical building control became almost entirely the responsibility of licensed engineers.

A new role for municipalities

Following the reform, municipal authorities were no longer involved in technical building reviews. Their main function became ensuring that the appropriate process is followed, that buildings are properly sited on the property, and that they are constructed in accordance with local planning and zoning requirements controlling building size, setback, height, and use.

Increased responsibilities for building professionals entailed new liability requirements

An important change introduced in 2011 was to clarify that investors, as well as the legal entities responsible for building design, design review, construction, and construction review, are responsible for any damages caused to a third person. The 2011 amendments required insurance for this damage and stipulated the amount of coverage necessary. The government's objective was to match the new rights of practitioners with responsibility for compliance with the rules.

Simplified categories of construction subject to technical review

Under the 2011 amendments, all buildings must be designed by a designer or contractor licensed in one of two categories: class A for buildings in category 1 and class B for buildings in category 2. All licenses, whether for design, construction, review, or construction supervision, reflect this classification. A person with a class A license cannot do work that requires a class B license.

Under Article 57 of the Construction Act, which regulates both civil engineering and building work, category 1 refers generally to larger and more complex buildings and includes civil engineering structures and buildings. The Construction Law details at length the very specific types of structures and buildings that fall under category 1, including:

- Nuclear power plants, airports, and dams with reservoirs
- Buildings for the chemical industry, metallurgy, storage of explosive materials, and oil products
- Facilities for higher education and for tertiary healthcare

- Facilities related to defense and protection
- Observatories, national cultural institutions, and memorial monuments
- Telecommunication and border-control facilities.

Category 2, for which a class B license is required, covers all other structures and buildings, including:

- Buildings used as elementary and secondary schools
- Buildings for primary and secondary healthcare
- Industrial buildings, commercial buildings, and business and combined residential-business buildings
- Buildings, apartment buildings, and sand buildings used as individual housing
- Shopping malls, hotels
- Zoos and windmills and thermal power plants up to one million megawatts.

These categories are very broad by international standards and appear to have been developed without reference to modern building codes.

Exempting houses from technical review

The 2011 amendments included a provision excluding houses of up to 200 square meters in area from design and construction review. No requirement remains to involve a licensed designer, design reviewer, contractor, or construction supervisor in building houses under this size. The government anticipates that most houses would fall into this category.

Eliminating the location permit

Another significant reform introduced in February 2011 simplified the building permit process, shifting it from a two-step process involving both a location permit and a construction permit to a single-permit system. If the general urban plan and detailed local plans are up to date and available to developers, a separate location permit is not considered necessary; compliance with planning requirements can be established by the local municipality prior to issuing the building permit.

Reducing the communal tax to improve the Doing Business ranking

In a more controversial move, the government reduced the communal tax for a specific category of construction that includes warehouses: the building type used in the Doing Business indicator. The communal tax for this category of building was reduced by 95 percent to gain a better ranking. Unfortunately, the communal tax for other categories of construction did not change.

Adoption of the Eurocode

Work has been underway for some time to translate the Eurocode[44] into Macedonian; it is expected that this work will be completed by the end of 2012. Macedonia plans to adopt

[44] The EN Eurocodes (European technical standards) are the Europe-wide series of 10 European standards, EN 1990 – EN 1999, providing a common approach for the design of buildings and other civil engineering works and construction products.

the Eurocode with some modifications or guideline documents reflecting local conditions and circumstances, including information on seismic and climatic conditions.

The adoption of the Eurocode will provide uniform product standards and a basis for a more practical approach to a risk-based classification of buildings as high-, medium-, or low-risk. In the absence of a code, Macedonia's current classification of buildings, described above,creates three categories based on building type or, in the case of housing, size.

Outcomes Achieved

Only one year beyond the last wave of large-scale reform, outcomes are difficult to assess, but some preliminary observations can be made.

Building control privatization has paid off

Macedonia's privatized system of design and construction review and coordination by licensed professional engineers was effective and efficient. In parallel, several documents inessential to establish compliance with building and planning requirements were streamlined or simply eliminated. This success was unequivocally recognized by *Doing Business 2012,* which acknowledged a drastic improvement: in just one year Macedonia moved up 86 ranks in the indicator for dealing with construction permit and now leads most OECD countries in number of procedures and costs to obtain a permit.

The new privatized system avoids the pitfalls of an overly bureaucratic system. Building design is carried out by certified engineers, and building review is carried out by an independent engineer. Similarly, building construction is reviewed by another independent engineer. All must be licensed by the Chamber of Engineers in the appropriate classification.

Qualification and oversight mechanisms should become more robust

Mandatory licensing for engineers (and architects, a profession considered a branch of engineering) was introduced in 2008, but the system is not yet as robust as it should be. Entry requirements continue to rely heavily on letters of reference rather than exams or other more formal systems. This is largely due to the lack of an officially recognized building code, which makes it difficult to structure exams on the legal and regulatory framework.

Discipline for enforcement also appears to be weak. According to industry observers few if any firms or individuals have been suspended or removed from the profession. In the absence of a robust governance structure, many professional associations act more as lobbyists and clubs for their members than as associations regulating professionals in the public interest.

Clarification of liability insurance coverage rules

Discussions with design practitioners suggest that introducing liability insurance coverage did not come easily. Challenges and questions remain,including how long practitioners remain liable for negligence and whether liability is "proportional" or "joint and several."[45]

[45] *Proportional* means proportional to the degree of liability; *joint* and *several* liability results in the wealthier party paying upfront and then trying to recover from the other parties at a later stage.

Other simplification efforts raise efficiency concerns

Elimination of the location permit has created some uncertainty in the absence of any preliminary feedback mechanism for municipalities to signal project endorsements to investors. In the absence of a fully operational zoning plan, some developers feel they have no choice but to circumvent the new regulation by seeking preliminary approval from the municipality before establishing detailed plans. The newly implemented "silence-is-consent" rule, combined with time limits, has also proved difficult to enforce. Enforcement agencies are reluctant and slow to accept it, resulting in additional costs for developers.

Reforms excessively targeting an improved Doing Business standing

To address concerns about high building permit and construction licensing costs, the government reduced the communal tax by 95 percent, but it limited this measure to warehouse buildings, the standardized case examined in *Doing Business* reports.[46] The communal tax for other categories of construction did not change. Such excessive targeting defeats the purpose of introducing reforms meaningful for the private sector. In fact, such targeting may well add confusion by increasing layers of tax regulations, exceptions to the rules, and, ultimately, complexity. Since municipal property taxes in Macedonia are generally too low, a full analysis of the communal tax entails assessment of whether it compensates for inadequate property taxes. If deficiencies in the property-tax system require collection of funds at the time of construction, the tax portion of the building permit fee should be clearly identified and delineated in the interests of transparency and accountability.

Lessons Learned

Finding success in the move away from a command-and-control approach

Macedonia is part of a leading a group of transitional economies that are rapidly shifting away from antiquated state-controlled, process-oriented, and costly bureaucratic building procedures. This group typically includes Georgia, the Czech Republic, Poland, Kazakhstan, and Russia: all have recently turned to international best practices to overhaul their building control systems. Even Russia has made bold reforms of this kind, having introduced advanced private third-party controls in its federal urban development code in November 2011. All of these countries share similar challenges, and the early reform phases have typically been difficult and have often had mixed results.

[46] A 6-meter high, 2-story warehouse with 1,300 square meters of total area located on a land plot of 929 square meters.

Sequencing reforms wisely

With the benefit of hindsight, one of Macedonia's very first reform steps should have been the adoption of a modern building code and appropriate standards, together with any guidelines necessary given climatic, seismic, and other country-specific conditions. This strategic choice would have helped Macedonia considerably in developing sound building classifications based on best practices and in creating a qualification system for building professionals consistent with those practices. Instead, Macedonia will have to work backward once the Eurocode is formally adopted, adjusting important aspects of its current system. While this is feasible, it will add costs and require increased efforts to communicate with and reach out to key target groups to bring building professionals and municipalities up to speed.

Privatizing works—with strong safeguards

Consistent with the experience of other countries that have followed a similar approach (for example, Colombia and Russia), Macedonia's experience shows that privatization of building controls should be immediately supported by the enforcement of more stringent qualification requirements for building professionals. A robust system of qualification based on the prescriptions of a modern code has yet to be adopted in Macedonia. Once the Eurocode is in place, Macedonia will need to focus reform efforts on increasing the trust of end-users and regulatory agencies in its licensed engineers. This trust will only increase if more robust entry requirements are set, exams are developed based on a recognized building code, and disciplinary and professional oversight systems are in place and fully functioning.

CASE STUDY: NEW ZEALAND

A Focus on Building Control, Accountability, and Consumer Protection

New Zealand's Building Act of 2004 initiated a suite of reforms to improve building design, construction, and regulatory control. One of the most important was the accreditation of municipal building control or consent bodies. More recent reforms have focused on improved practitioner accountability, information sharing to improve transparency, and consumer protection.

The building consent authority (BCA) accreditation scheme requires that any council (municipality) that carries out building consent (permitting), inspection, and approval work be accredited by the independent Building Consent Accreditation Body against standards and criteria set in the regulations. The council must also be registered by the Department of Building and Housing using criteria set in the regulations.

The BCA accreditation scheme focuses on assessing technical competencies, resources, equipment, procedures, systems, and processes to ensure they are adequate and are followed, with identified outcomes achieved. It establishes outcome-focused and performance-based standards and criteria for building consent bodies, meaning that the means for achieving specified outcomes can vary within the BCA's stated size, volume, and type of work stipulations.

While the Department of Building and Housing is the central government regulator, responsible for registering local municipal councils, it shares regulatory responsibility under the Act with local governments. New Zealand has 69 local authorities (city and district councils) spread across the country and 11 regional authorities. Under the Building Act, these bodies are responsible within their respective jurisdictions for certain enforcement functions, including issuing building permits, inspecting the work, and approving the construction that meets legal requirements.

Before Reform

Lack of transparency in building control

Prior to 1991, only local councils had the statutory obligation to assess building consent applications, issue building consents, carry out technical inspections, and finally approve the building for occupation or use. The consenting process and application requirements had little transparency. Applicants, including owners, developers, architects, designers, and builders, had to make multiple visits to the local authority to complete these processes. Building consent applications were very basic, as well, given the absence of quality and completeness requirements. Time limits were not placed on the consent process, and no formal approval was required to sign off on buildings after construction. The absence of a collaborative approach within local governments resulted in multiple points of fee collection.

An improved building consent process using clear rules and private certifiers

The Building Act of 1991 established a performance-based or outcome-based building control framework. Building consent processes were improved by requiring fewer applicant visits to the local authority. Greater transparency and use of better plans and specifications improved the building consent process, although many local authorities still accepted substandard plans and specifications. Other key improvements established by the act included the following:

- A one-stop approach to fees

- A statutory 10-day limitation for building consent processing
- A Code Compliance Certificate formally asserting that a building had passed final inspection and was fit for habitation
- The position of Private Certifier, an individual or company operating as a private building inspection body to certify building plans and compliance of completed buildings with the Building Code. Under the 1991 reforms building certifiers operated in competition with local councils.

Key Reform Goals and Measures

Improving processes and outcomes

Another Building Act passed in 2004 added several key objectives for improving building system outcomes and processes. Among them were the following:

- Providing tangible quality improvements for all building consent, processing, inspection, and approval functions
- Improving consumer/investor protection and satisfaction
- Developing and effectively implementing robust, documented, and measurable building consent systems, processes, and procedures.

Creating a joint regulator role between central and local governments

It was the government's intention through the Building Act reforms of 2004 to set up a single central agency to administer functions relating to building and construction. The Act created a statutory joint regulator role between the central government's Department of Building and Housing and local governments through the territorial and regional authorities. Introducing the philosophy of "Working with the Sector," the new approach demanded improved analytical information on building and construction trends and issues, to lead to better informed decision making. A priority under the new approach was improving communication across the sector for better informed stakeholders and consumers. The new system also mandated the collection and retention of building consent information through local authorities.

Introducing state accreditation of municipal building consent authorities

One of the most important reforms introduced in 2004 was the accreditation of municipal building control or consent bodies. The Building Consent Authority (BCA) accreditation scheme requires that any council (municipality) carrying out building consent (permitting), inspection, and approval work be accredited by the independent Building Consent Accreditation Body and then registered by the Department of Building and Housing, both stages requiring that the criteria established by the law are first met.

The accreditation and registration scheme is meant to achieve the following goals:

- Assure the public of the quality of building controls
- Promote consistent, standardized, ongoing good-quality practices in building control
- Identify good building control practices and provide mechanisms for sharing this information throughout the sector and with other interested parties
- Foster continuous improvement in building controls at the national and local levels
- Ensure better technical capabilities and resourcing of building controls

- Provide an impetus for much closer, more formal relationships among BCAs and between BCAs and technical consultants/contractors
- Provide incentives for improving performance and raising standards in building control.

Some of the more specific objectives of the accreditation initiative were to provide more consistent interpretation of the Building Code among the control authorities. The new accreditation requirements for building consent authorities have encouraged local authorities to pool resources and skills.

Realigning private practitioners with local building control authorities

The 2004 Building Act repealed the private certifiers scheme and introduced the Private Building Consent Authority regulations. Developers and contractors no longer engage these private contractors directly for building control functions, because the private contractors did not meet the requirements of the independent Building Consent Accreditation Body. As a result, a number of private certifiers restructured their businesses and offered their building control services directly to the local council BCA operation. A number of local building control authorities have engaged private contractors to undertake certain building control functions defined within a contract.

Changing accreditation and registration rules for private practitioners in building control

The Building Act also enabled private organizations to seek accreditation and registration as BCAs. Before a private organization could register as a building consent authority, it had to satisfy the Department of Building and Housing that it had adequate means to meet any civil liabilities arising from its building control work. Municipal councils, on the other hand, would already be deemed to have the resources to meet civil liabilities.

The accreditation regulations require that all accredited private firms define their scope of work commensurate with their technical qualifications, skills, and experience. Councils are also required to monitor the systems, processes, and technical outcomes achieved by the contractors. BCAs that utilize the services of private building control contractors must require as a minimum standard that the private contractor is accredited under New Zealand BCA regulations.

Licensing building practitioners

The Licensed Builders Practitioners (LBP) scheme will provide ongoing assurance to consumers that their construction work will be carried out by qualified and reputable building-sector professionals. The BCAs must gather the required design statements and confirmation of construction works from the LBPs. The accreditation scheme requires that this new process be documented and monitored to ensure reliable analysis of implementation data.

Vetting building projects to ensure the quality of plans and specifications

The BCAs introduced building-project vetting, ensuring the quality of applications was up to the minimum standard before they were accepted for processing. The overall costs associated with a building project can now be calculated more easily, as the compliance costs are worked out up-front. A more efficient fee structure has been introduced with a deposit or majority of costs usually taken up-front and the final balance due before a Code Compliance Certificate is issued.

Their accreditation standards require that BCAs accept only good-quality plans and specifications. The BCAs are charged with providing guidance and education to the sector to encourage submission of good-quality applications meeting the standard required; they are expected to reject poor-quality applications, which has led to improved quality and consistency in building consent applications.

Improving the performance-based building code

The reforms consolidated the development and ongoing review of and improvements in the national Building Code against which safety and compliance could be measured. It introduced tighter controls on building construction methods and safer, healthier, more sustainable building requirements, while also balancing the desire for creativity and innovation.

The government also began reviewing and implementing new systems for governing national building design, construction, and inspection compliance, using an internationally unique performance-based National Building Code. The focus was on designing and constructing safe and healthy buildings and tightening up on safety issues such as fire protection, weather tightness, and swimming-pool fencing.

The government also made a point of increasing awareness in the building sector of environmental protection issues. In this regard, the improved regulatory scheme emphasized to building owners and developers the requirement for compliance with the building code and ongoing maintenance of essential building functions.

Outcomes Achieved

Accreditation of building control authorities led to improved productivity and consistency

As outlined below, the accreditation scheme for building control bodies has improved the efficiency of buildings and construction as developers have more certainty of consistent decisions within each region. Building control authorities have been encouraged to share resources and enter into contract arrangements with other BCAs.

Consistent interpretation and better enforcement of the building act and building code

Developers and investors now expect the same processes and regulatory interpretations in all regions of New Zealand, making interregional investments easier to manage. The introduction of a tighter building regulatory environment provides consumers with better protection as well. The accreditation scheme provides a framework for consistent assessment and interpretation of the Building Code by the BCAs. This is independently monitored and verified by the BCA Accreditation Assessment Authority.

Building control authorities voluntarily cluster into regional groups to share resources

The BCA accreditation standards and criteria introduced compulsory competency assessments for all building control staff. These staff competency requirements, along with other BCA accreditation criteria, have encouraged shared resources and contract arrangements between BCAs. Consequently several building control authorities have voluntarily clustered into regional groups, sharing resources and developing common policies, practices, and systems.

This clustering has improved the productivity of building and construction as developers have more certainty of consistent decisions within each region. The original 85 local authorities initially formed into 9 cluster groups sharing resources, processes, and development of BCA procedures. Since then, the 8 Auckland local authorities have amalgamated into one "super city" with one building control unit for the entire region comprising of 650 staff. The challenge remains at the national level, however, of how best to foster consistent adoption of processes, technical interpretations, and decisions.

Lessons Learned

Better preparation for building consent authorities undergoing new accreditation systems

Following the reforms of 2004, the New Zealand Government agreed to a review its provisions with the aim of reducing the costs, but not the quality, of the building control system. The review, conducted in 2010, found that although the system was not dysfunctional, it was costly and inefficient. The review noted that changes made by the Building Act of 2004 had contributed to much-needed improvements to the quality of building work, and it emphasized improving the transition process for accrediting private practitioners at BCAs. It claimed that BCAs were not ready to perform their new tasks and that this lack of preparation may have caused some delays in many jurisdictions.

Clearer accountabilities for owners, designers, builders, and building consent authorities

One of the key changes identified by the government was the need to clarify the responsibilities of key practitioners. This included clarifying designers' accountability for ensuring that their plans, specifications, and advice meet Building Code requirements; builders' accountability for building to any approved plans and specifications; and owners' accountability for getting any necessary approvals. Building Consent Authorities' responsibilities were also clarified: they are responsible for checking that others are doing their part, examining plans and specifications for compliance with the Building Code, verifying at any prescribed inspection points that work is being done in accordance with the plans and specifications, approving any important variations, and certifying that the work has been completed in accordance with the consent.

Enhanced consumer protection

As a result of the 2010 review and the changes included in recent amendments to the Act, all projects between contractors and end users above $NZ 20,000 are now required to have a written contract. Every contract must include the already-existing warranties in the Building Act requiring that building work to be fit for purpose, that it meet the Building Code, and that it is undertaken with reasonable care and skills. The BCA will be required to confirm that a contract has been entered into, unless the consumer provides a waiver.

In addition, the building contractor must give the consumer information before the contract is signed, including publicly available information about any disputes affecting the contractor, for example, the results of any court judgments against it. Building professionals will be required to disclose what, if any, surety or insurance backing they have to cover the cost of fixing any faults.

Core reforms supported by best-practice measures

Recent amendments to the Building Act set to take effect in 2012 establish a framework for a stepped, risk-based building consent system that aligns the amount of plan checking and the number of inspections carried out by the BCA with the risk and complexity of the work and with the skills and capability of the people doing the work.

CASE STUDY: NORWAY

Trust But Verify—Norway's Experiment with Self-Certification

Fifteen years ago Norway introduced major changes to its building-permit system by implementing a system of building control relying almost entirely on designer and builder self-certification. Before that, Norway, like many jurisdictions, depended on third-party or independent review by local municipal building authorities. The idea was that self-certification would provide a solution to the problem of inadequate capacity and competence among local authorities. The building industry was also pushing for major reforms to streamline the system and address bottlenecks. While the larger municipalities usually had the necessary technical expertise to conduct inspections, they often did not have enough staff, resulting in delays. The smaller municipal building departments, on the other hand, often did not have staff with sufficient expertise to review complex building plans and construction.

The intent of the self-certification approach was to rely on the professional designers and builders to comply with the regulations. Under this approach, state-qualified and approved designers and builders could certify that their own building design or construction complied with the regulations. The local authorities still had oversight responsibility, but it was primarily limited to ensuring that procedures were followed. It soon became evident, however, that Norway's bold experiment with self-certification did not work. The cost of building defects increased following these reforms.

Under the new system, municipalities required or undertook very little independent technical review of building design and construction. So while the new system was efficient, it was not very effective in protecting public safety or the building owner's investment. Surveys showed a high rate of building defects, and many buildings needed expensive repairs to ensure they met public safety and building-code standards, entailing significant economic costs. Defects that went unidentified and unremedied represented threats to public safety.

Relying on designers and contractors to check their own work was clearly unsuccessful. To deal with the poor outcomes from self-certification, the Norwegian authorities decided to continue reform efforts. In 2010, the Building Act was amended, with changes taking effect in July 2012. The new reforms, designed to re-balance the system, retain self-certification but add a requirement for mandatory independent review of certain key building components by state-approved private-sector practitioners.

Before Reform

Insufficient capacity in some municipalities to review plans or construction

Prior to the 1997 reforms, Norway's building control system was similar to traditional systems elsewhere in that it relied on third-party review[47] by local municipal building inspectors. With a population of about five million, Norway has a mix of urban and rural municipalities with diverse and challenging climatic conditions. In the mid-1990s, Norway's 431 local authorities were responsible for local building control. Their responsibilities included reviewing technical building plans and performing site inspections during construction. Every building received

[47] The term *third-party* review refers to the practice of having a different and independent party, other than the designer or the contractor, review a building's design and assess its compliance with building codes and other relevant regulations. Modern, effective construction-approval systems increasingly involve licensed or approved private engineers to fulfill this review function, often delegated by the municipality or the responsible local enforcement agencies.

a number of site inspections to verify compliance with the building regulations. Larger municipalities were generally able to do a proper job of building control, although they often had insufficient staff for timely reviews of permit applications, so many permit approvals took too long. Smaller municipalities, some with populations of only 800 people, often lacked staff with sufficient expertise or resources to review building plans and conduct inspections. Developers and contractors, too, lobbied in favor of self-certification a way to speed up the permitting and inspection process.

High-level expertise lacking to enforce performance-based codes

Norway introduced performance-based codes in the mid-1990s, one of the first countries to do so. Performance-based codes provide more flexibility and support innovation by focusing on outcomes to be achieved (how a building will perform) rather than prescribing how the building must be constructed. The use of performance-based codes, however, requires a higher level of technical competence than do other approaches. Because they do not rely on prescribing a particular method of construction, performance-based codes depend on the expertise of the designer to achieve the required level of performance with respect to objectives such as structural and fire safety or energy efficiency. Often Building Codes provide either a performance or a prescriptive option for houses and other buildings typically not designed by professional designers. The move to more performance based-codes led to reform of the building control system to rely more on the expertise of building professionals.

Public expectations exceeded public bodies' legislated responsibilities

Public expectations were high for the new system. Some building owners thought that the building control authorities would also be responsible for quality control and for ensuring that building designers and contractors complied with their contractual obligations. But in fact building regulatory authorities did not take responsibility for enforcing contracts; they had responsibility only for public safety and other matters covered by building codes and regulations.

Key Reform Goals and Measures

Introducing a self-certification system

The original reforms of 1997 tried to address problems in the then current third-party review system: primarily, lack of staff, resources, and expertise for the timely, thorough delivery of services. The Norwegian authorities' solution—to introduce anew system relying almost entirely on self-confirmation by qualified designers and contractors, supplemented by third-party review enforced by municipalities—did not work as planned, however. The reforms shifted responsibility for regulatory compliance and building safety from the municipal authority to the building designers and contractors, who had the necessary competence, knowledge, and resources, but the number of building defects increased sharply.

Increasing reliance on independent or third–party review

Many building control systems rely on reviews of building plans and construction by an independent or third party, often a local government inspectorate or a government-licensed private inspection body, to protect the public interest. Third parties are preferred, and sometimes required, because building owners and other persons involved in the building design and construction, may, notwithstanding their best efforts, miss crucial design or construction defects. They may, in some cases, be inclined, or pressured, to cut corners to reduce costs, resulting in unsafe buildings and expensive repairs to correct defects.

A new practitioner: the Approved Building Enterprise (ABE)

The 1997 system, in attempting to ensure the capability of the designers and contractors taking responsibility for self-certification, established a new licensing system. The qualification approval system to become an Approved Building Enterprises (ABE), was instituted under the Office of Building Technology and Administration (NOBTA), in the Ministry of Local Government and Regional Planning. By registering as an Approved Building Enterprises a company, including building designers and contractors, became eligible to certify others' and their own designs or construction work. Many contractors registered as ABEs to certify their own work.

In addition to registering with the Norwegian Building Authority to become prequalified or preapproved to certify building work, companies could also apply to the local building authority to be qualified to undertake self-certification. When qualified by the local authority,a practitioner is authorized to charge higher building permit fees.

Establishing the requirements to become an Approved Building Enterprise (ABE)

The requirements for registering as an ABE include meeting technical competency standards, having the necessary expertise, being knowledgeable about relevant legislation, and having a quality management system in place. The system recognizes four levels, with practitioners assigned a level according to their educational attainments, from architects at level A to tradespeople at level D.

When the new system was introduced, legacy rights allowed existing practitioners to continue to practice, but these grandfather rights gave way fully to the qualification system in 2003. By early 2102, the system recognized some 500 different classifications of qualified designers and contractors.

Introducing a risk-based approval process for improved efficiency

Building projects are divided into three categories based on the difficulty and level of risk to the public in the event of a defect. Classifying building projects in this way helps to ensure the most efficient and effective allocation of scarce resources. Building regulatory systems in many jurisdictions around the world employ a similar approach. In some cases smaller accessory buildings, such as garages or storage sheds, are excluded from technical review altogether.

Outcomes Achieved

The 1997 reforms: a more efficient process, but declines in quality

The actual outcomes of the new self-certification system were poor. The new system was possibly more efficient, but it was certainly less effective in protecting public safety and building investments. One of the problems with self-certification was that municipalities did not often enforce the third-party review specified in the control plan prepared by the self-certifying designer. According to a 2007 report from the U.K. Building Control Alliance, no meaningful compliance checks were made prior to construction, allowing the possibility that serious contraventions could go unnoticed.

Local practitioners estimated that after the 1997 reforms twice as many buildings per year collapsed, causing deaths in some cases. According to a 2003 report from the Norwegian Building Research Institute on building defects, 4 percent of building costs before handover to the owner and 4 percent after handover could be attributed to defects arising from failures in building controls, suggesting a total defect rate of approximately 8 percent. About half of these

defects were attributed to design; the other half attributed to construction or installation. An estimated 76 percent of defects were related to moisture control issues reflecting, to a large extent, Norway's challenging climatic conditions. After 1997, the total costs of the defects attributable to inadequate building control was estimated at $600 million per year. Other reports differed in their estimates, however: a report from the Norwegian Building Research Institute in 1993 estimated costs at 5 percent of construction, while estimates reported in the 1997 U.K. Building Control Alliance Report put the costs associated with repairing defects under the new system as high as 20 percent of construction costs.

Illegal building work also increased under this system as enforcement fell off against both illegal building and approved practitioners' noncompliance with regulations. Building officials came to see the system as essentially an exercise that had moved from "surveillance control" to "paper control," and some local authorities started to call for more independent building control administered by the local authorities themselves or by private-sector third-party certifiers. A second wave of reform was instituted to redress the issues of failed enforcement, building defects, and costly repairs to deficient and potentially unsafe construction.

An updated qualification system for Approved Building Enterprises

Amendments to the list of disciplines covered by the Approved Building Enterprises (ABE) substantially reduced their number for building design, construction, and third-party review. The new disciplines apply to project classes 1, 2, and 3, with the classifications reflecting a range of difficulty and risk. Given the system's heavy reliance on designers, contractors, and private third-party certifiers, the qualification system for ABEs is of crucial importance.

The use of electronic permitting and streamlining fees

Local authority procedures in Norway are intended to improve capacity and efficiency in municipal building departments. The electronic submission of applications has improved efficiency and transparency, as the system will not accept incomplete applications. The electronic permit application system was introduced 10 years ago. It operates on a single central server and uses a common permit application form. About 50 percent of Norwegian municipalities can receive building-permit applications electronically.

Building regulations also now require that the sum of the fees charged not exceed the local authority expenditure on building-permit activities and planning (zoning review). This helps ensure that sufficient funds are available for the timely processing of development applications by qualified staff. It also avoids the problem of fees collected for one purpose (permit and planning review) being used for another. In the interest of transparency, all fees and municipal finances are reported annually to the Ministry of Local Government and Regional Development. If necessary, general tax revenues can be used to support building department and zoning activities where fees are insufficient.

The qualification approval system contains 15,000 firms

About 15,000 firms have been approved to date under the Approved Building Enterprise system. Each company receives one approval or registration, and accreditation must be reviewed every three years. The state qualification agency has the power to carry out audits and remove a practitioner's qualification for serious contraventions of the building code or qualification requirements. Although this has not happened very often, recently the country's third-largest builder lost its license and was forced to restructure its business.

Lessons Learned

Norway's self-certification system: a "paper tiger"

The Norwegian construction permit reforms provide an interesting example of a system in which the pendulum has swung from one end of the arc to the other before settling somewhere near the middle with a still significant reliance on the private sector.

Prior to the 1997 reforms, Norway had a traditional building control system reliant on the public sector for technical review. These reforms completely changed the system by not only shifting compliance responsibility to the private sector but by shifting much of it to the building's designers and contractors themselves. This self-certification approach depended on state-qualified designers and contractors and substantially reduced the role of third-party technical review, which was not mandated for key building components. Norway's system did not provide the proper quality control and review tools needed to maintain the expected quality results. The state licensing system was insufficient to ensure that state-approved designers and contractors could be relied on to comply with building standards, making the system essentially a "paper tiger" with no real teeth.

Independent technical review is key to building control reforms

Problems with building quality and code compliance led the government to revisit the system and to reintroduce third-party review through mandatory plans review and inspection by private, state-qualified inspection firms. These agencies were made responsible for third-party review of certain key building components, including those related to fire safety, structural safety, and energy efficiency. Third-party review requirements applied to all building types and classifications.

Effective licensing of building professionals is crucial

Since the effectiveness of the new system relies on self-certification and third-party review of key building elements by state-qualified persons, the system relies heavily on the quality and robustness of the state qualification and licensing system for designers, contractors, and firms undertaking third-party review. Systems reliant on self-certification and technical review by private-sector agencies are potentially vulnerable to conflicts of interest, with professional bodies attempting to protect members from excessive scrutiny and criticism. Norway's system avoids this by making state-qualification and licensing the standard. Moving forward, if the qualification and licensing system for designers, contractors, and third-party inspection agencies can remain robust and reliable, the Norwegian approach may well prove an effective and efficient model for building control.

Electronic permitting significantly reduces red tape

Norway's embrace of electronic permitting and other modernization measures to improve local authorities' capacity and efficiency have helped to improve and streamline the overall system. Electronic permitting, which can include the electronic submission of building plans, can speed up submission and processing of permits while application tracking facilitates communication and interaction with applicants.

Increased private-sector responsibility combined with a robust liability regime

Approved private-sector third-party consultants are not required to carry insurance to cover their liabilities as a third-party or independent reviewers of building design and construction. This absence of additional insurance for approved building design and construction reviewers should be addressed in the next wave of Norway's building reforms.

CASE STUDY: SINGAPORE

Combining IT Solutions with Public-Private Collaboration to Achieve More Efficient Building Approvals

In the early 1990s the Government of Singapore launched the IT2000 Masterplan. This initiative was designed to explore how information technology (IT) solutions could create a competitive advantage, enhance productivity, and improve the overall quality of life in Singapore. Of the 11 groups created to lead this task, one was the Construction and Real Estate Study Group. Private- sector practitioners, professional associations, and government agencies were all part of this group. Its objective was to explore the incorporation of IT solutions to improve the productivity and efficiency of the construction and real-estate sector.

In 2001, as result of the work done and consultations conducted by the study group, the Construction and Real Estate Network (CORENET) building approval online platform was launched. This system significantly enhanced the quality and agility of construction approvals by allowing online applications and verifications.

Before Reform

Multiple application forms to different agencies required to meet performance and approval standards

Before the reform, many of Singapore's construction professionals were not satisfied with the building approval procedures. According to them, most of the agencies involved had different standards for collecting information and for reviewing plans. This situation made the process less efficient and more costly than it could be. Every agency involved had different application forms with different requirements, and applicants often had to fill out several of them. Builders sometimes needed to submit the same information to many different agencies, making the process redundant. In some cases, although some agencies would approve low-risk projects with a fast-track option, other agencies would not, delaying the project. Delays meant more waiting time, more interactions with public officials, and more unnecessary printing, transport, manpower, and office storage costs.

Existing design software underutilized for lack of common technical standards

By early 2001, most of Singapore's construction firms already used computer-aided design software (CAD). The CAD digitalized drawings were not easily shared among private practices and government agencies, however, because CAD symbols, layers, and data were not standardized. This lack of standardization impeded project partners from taking full advantage of the CAD drawings.

Key Reform Goals and Measures

Creating performance standards among private practitioners and public agencies

Singapore's Building Control Department (BCD), currently the Building and Construction Authority (BCA), was appointed by the Construction and Real Estate Study Group to lead the efforts to incorporate IT solutions into the building-approval process. The roadmap was to reengineer some of the practices needed to submit building approvals, including performance standards and common technical specifications, and to incorporate these changes into an electronic platform.

BCD created a task force with representatives both from the private sector and from public agencies to establish common performance standards. One of the main initiatives was the introduction of a Declaration System. This system had been already implemented by BCD and included a risk-based approval approach. With this system, simple or low-risk projects have faster approval processes than complex or higher-risk ones. The Urban Redevelopment Authority (URA), for example, implemented a target of approving 90 percent of applications within four weeks. Private practitioners also attended several seminars to learn how to submit better plans. Public agencies even shared common mistakes in building-plan submissions as a learning tool so private practitioners could avoid similar mistakes in the future.

Easing approval requirements by giving more responsibilities to qualified professionals

Another initiative was to give more responsibilities to building professionals, known in Singapore as qualified professionals (QP), who could be either certified engineers or certified architects. In the old system, the BCD alone was allowed to issue the reference number for a project. With the new initiative, qualified professionals can do this task, saving practitioners an additional visit to BCD.

Standardizing building plan drawings for successful e-submission and electronic information sharing

After several rounds of consultations with private-sector practitioners and public agencies, a task force of around 150 members was set up to formulate a set of building drawing standards applicable to various disciplines, including structural, architectural, and mechanical approvals. As a result, a set of recommendations for industry standards on two-dimensional CAD layers, symbols, and line types, among others, were drafted to achieve uniform practices among industry firms and agencies. This work was then submitted for endorsement to the Construction Industry IT Standards Committee (CITC) for approval. Currently this set of standards is known as the Singapore Standard or CP83. To encourage the use of CP83, professional associations and public agencies jointly signed a Memorandum of Understanding (MOU) for National IT Standards.

E-submission and electronic information sharing to automate CORENET's reengineered building approval process

In parallel with the efforts to improve performance standards, give more responsibilities to qualified professionals, and standardize building plan drawings, a separate task force was set up to work on automating the new, reengineered building-approval process. Within the task force, debates unfolded on the technology that should be used. After several consultations with private professional associations, such as the Singapore Institute of Architects (SIA) and the Institution of Engineers (IES), and public agencies, including BCD and the Urban Redevelopment Authority, it was decided that a centralized Internet or online platform would be the best choice.

The CORENET system included an e-submission component that allowed qualified professionals to send applications and building drawings via the Internet. In addition, an electronic information-sharing component made it possible for all relevant agencies to receive this information and to share documents and approvals among themselves. Confidentiality and security concerns raised by the professional associations and the qualified professionals

regarding e-submission were taken into account in designing the platform. Strict digital signature protocols as well as data encryption functionalities were incorporated into the system.

The task force believed Internet penetration would increase in Singapore after 2001 and thus considered that the system's availability and functionality would meet the targets set by the team. They also thought that replacing paper-based submissions with electronic ones would significantly improve the efficiency and quality of CORENET's building approval process. Time proved them right. According to BCA, the design cost of the system was around $4.8 million, excluding a technology update every five years, andyearly operating costs are about $800,000.

Coordinating CORENET implementation with public agency back offices

After CORENET's design was completed, and because harmonization of performance standards and technical standardization had already been undertaken, coordination with the different back offices of several public agencies, such as the Urban Redevelopment Authority or Building and Construction Authority, was simpler but still necessary. The next step was to digitize the results of the previous exercise to guarantee a smooth exchange of information and authorizations among agencies using the new electronic system, thus expediting building-plan approvals. All these efforts were supervised by the newly formed CORENET Implementation Committee (CIC).

Raising public awareness to ensure proper utilization of CORENET's e-services

Even if most building-profession associations had already participated in the design of the CORENET system, the task force understood that it needed to go further and reach the majority of qualified professionals in Singapore. About one year before CORENET's launch in 2001, the Building and Construction Authority conducted regular seminars and workshops with qualified professionals to keep them informed about and interested in the new platform. This same model continued for six months after the launch of the system to ensure proper implementation. Up to 70 percent of the costs of hands-on trainings for using CORENET were paid by its Implementation Committee. The aim was to use this dialogue to achieve a high level of ownership and commitment from the qualified professionals.

Building IT capabilities for qualified professionals

Within the dialogue started between the Building and Construction Authority and qualified professionals over CORENET's implementation, one of the key concerns voiced by the private sector was that most industry practitioners lacked the technology resources and skill base needed to operate CORENET. To tackle this problem, the Industry Development Projects Committee (IDPC) was established to help bring qualified professionals up to speed with CORENET's operational requirements.

Providing incentives to build IT capacities in the private sector

The Industry Development Projects Committee and the Building and Construction Authority from the public sector, along with the private-sector organizations, contacted suppliers of Netrust digital certificates, broadband services, and software providers for programs like PureEdge and CAD viewers, all crucial for the operability of CORENET, to obtain better prices and support for their agencies and members. Along with this effort, the CORENET Implementation Committee provided an incentive to encourage early adopters of e-submission services through subsidies to cover the cost of the software required for viewing electronic forms and drawings. In 2001,

it launched the "Jumpstart Construction" program to provide a subsidy of up to 50 percent of the costs to upgrade IT capabilities. The maximum amount for each subsidy was $16,000 per firm.

Providing close support during CORENET implementation

A few weeks before the implementation of CORENET, BCA along with staff from the software providers, set up help desks and call centers to quickly resolve technical difficulties. In some cases, members of these help desks even visited the offices of some qualified professionals to provide timely support. In another initiative, e-kiosks were set up for construction firms still in the process of upgrading their IT capabilities.

Completing CORENET implementation by making it mandatory

After authorities provided many tools to ease the implementation of the CORENET system, the CORENET Implementation Committee recommended making electronic submission mandatory within three years of launch. For the committee, it was fundamental that the qualified professionals make the effort to utilize the resources provided by the authorities and to modernize their IT capabilities to implement the new system fully. The leadership group strongly believed that having a dual system combining both paper-based and electronic-based submissions could jeopardize CORENET's success.

Outcomes Achieved

CORENET attained full implementation in only three years

According to the Building and Construction Authority, in 2002 around 7,000 applications for building approvals were submitted using the CORENET system. By 2004 this number was closer to 150,000—the total number of building approvals submitted that year in Singapore. In following years the number of CORENET-based applications increased significantly, with submissions in 2010 reaching approximately 470,000.

Most qualified professionals and public agencies experienced time and cost savings

After the system became fully operational in 2004, a survey among qualified professionals revealed that 100 percent of the respondents enjoyed savings from using CORENET. Savings were noted in printing costs by 72 percent of the respondents, in transport costs by 81 percent, in hardcopy storage expenses by 54 percent, in manpower costs by 44 percent, and in time savings by 65 percent. Public agencies also reported that online submission and electronic information sharing for building approvals saved them time and resources.

Common technical standards improved efficiency and quality

With the implementation of CP83 standards both public and private practitioners agreed that Singapore's building sector became more agile and safer. Private practitioners even reported saving time within their own firms because all qualified professionals were using a common technical language that had been unavailable before the reform. Similar comments have come from technical staff at the public agencies.

Lessons Learned

A lead agency involving all stakeholders from the beginning—a key element for success

The Construction and Real Estate Study Group, under the IT2000 Masterplan, gave the Building Control Department (now the Building and Construction Authority) the key role of leading this initiative. The importance of having a clear leader was a tremendous factor in its success, providing the reform process with excellent coordination, direction, and accountability. The BCA from the beginning understood that participation and ownership of all stakeholders involved would be essential. Thus, it included all the relevant agencies and private-sector practitioners throughout the entire design and implementation process for CORENET.

Providing financial and technical support for implementation

The handholding program undertaken in the course of implementing CORENET was crucial. If private practitioners did not have the proper tools and incentives to switch from a paper-based system to an electronic platform, the implementation of CORENET could well have been much lengthier. Subsidies to update IT capabilities, along with help desks and several seminars and workshops offering technical assistance, were fundamental to CORENET's successful implementation.

Making use of CORENET mandatory as a tool for success

Handholding and incentives are not always sufficient to convince everyone of the worth of a new, unfamiliar system. If given the option *not* to switch from the old system to a new one, a significant number of users are likely to prefer to remain with what they know. Along with subsidies, workshops, and technical assistance, therefore, the authorities set a clear and reasonable deadline for the mandated use of CORENET.

Reengineer first, automate after

One of the most valuable lessons from Singapore's experience is the importance of reorganizing the approval process before adopting IT solutions. Authorities met with the private sector and with the technical staff of each of the agencies to look for synergies and to create common standards to improve communications and information-sharing protocols among them. Only after this task was completed did the reforms move toward automating the approval process. In short, automated solutions can definitely help improve a system's productivity, but if the system is dysfunctional, IT solutions cannot solve its problems.

CASE STUDY: UNITED KINGDOM

Public-Private Competition in Building Control

In 1984 the United Kingdom introduced revolutionary changes in building control in an effort to modernize its building regulatory system. The Building Code was transformed into a flexible, innovation-friendly performance- or objective-based code, and the building control regime was likewise transformed into a much more flexible system. Under the new system, home builders could choose to have inspections done either by a private approved inspector (AI) or by inspectors from the local authority. In the years since these changes were made, the scope of the private inspection alternative has expanded to encompass all types of construction.

As of 2012, some 60 private approved inspectors, including several large corporate inspection firms, were in operation. Approved inspectors are retained by builders and can operate in any municipality. Currently an estimated 30 percent of building control work is undertaken by AIs,and the remaining 70 percent by local building authorities. The legislation requires local authorities to act as backstop providers of building control for all types of building construction within their municipal boundaries. Some municipalities, however, have collaborated to be more competitive with the AI firms.

Compared to other jurisdictions, the U.K. building regulatory system focuses heavily on building control rather than building practitioner control. Under the U.K. system, the state does not directly regulate the competence of persons or firms undertaking building or design work; rather, it focuses its efforts on improving the building control system. While there has been some interest in revisiting the underpinnings of the U.K. system, this is unlikely to happen soon. The U.K.'s system will continue to be characterized by a laissez-faire approach in which the state does not restrict who can design. A system based on practitioner licensing, as in Austria, or an insurance-driven system, as in France, are unlikely to come anytime soon to the United Kingdom, as it continues to refine its system of competing public- and private-sector building control.

Before Reform

A traditional building control system relying on local building authorities

Prior to 1984, the United Kingdom had a relatively typical building control system, with review of building design and construction handled exclusively by local municipalities. These local authorities were responsible for the full range of building control work, from small residential renovations to large commercial projects.

In 1984, the Building Act was amended to move away from very prescriptive regulations to facilitate innovation and increased flexibility in building construction through the introduction of performance-based regulations that outlined the objective to be achieved without prescribing specifically how it should be achieved. It was anticipated that the move to this performance- or objective-based building code, which facilitated the use of innovative or alternative solutions to building design or construction, would require a higher level of expertise among building control authorities. Because of this consideration, the government reformed the building control system to bring private-sector expertise into the process.

Key Reform Goals and Measures

Opening the system to provide public and private options for building control

As in many jurisdictions around the world, the United Kingdom relies heavily on independent review of building construction through a system of building control. Reforms to this system opened it up to provide two options: use of public building control authorities or use of approved private inspection agencies. Other reforms to the system included an option for approved contractors to use self-certification for small, low-risk projects such as window replacements and plumbing and electrical work.

Creating the Approved Inspector program

Legislative amendments through the Building Act of 1984 introduced the option of private building control through approved inspectors. Before that date, only inspectors engaged by the National House Building Council (NHBC) could provide building control services. Until recently private-sector involvement in building control was limited to new homes subject to warranty under the NHBC. It did not extend to high-rise residential buildings, conversions, or other types of nonresidential construction, such as commercial or industrial buildings. By limiting building control services to NHBC, the government ensured that private building controls were only provided where a warranty program was in place. A builder with warranty coverage met the registration requirements of the warranty provider and thus could receive warranty coverage for each house built under the warranty.

Letting building professionals choose between public or private building control

When a builder decides to use an approved inspector, the builder and the AI must file an initial notice with the local building control authority to signal to the authority that an AI has been engaged for the project and the builder will not seek its building control services. The jointly filed initial notice is accompanied by building plans, including information such as type of occupancy and size and height of the building, along with information on the AI's insurance coverage. The local building authority has five days to review the initial notice, and construction can be started during this time. The initial notice can only be refused for a limited set of prescribed reasons, including starting construction before the five-day notice period has begun.

Introducing two new key roles for local building authorities

Under the building reforms that introduced the private-inspection option, the local building authority was given two new key roles: filing the AI documents ensuring adherence to required procedures and providing alternative, backstop inspection where an AI is not used or is unavailable. The local building authority must complete the full review of plans within five weeks, with the possibility for an extension to eight weeks. The builder, however, can proceed to build even before the plan review is complete or can build even if the local building control authority rejects the plans. The builder, in other words, is allowed to regard plan approval as purely advisory and just one consideration in its risk-management strategy. Unlike many building authorities, the local building control authority does not issue a permit, nor is one required to start construction. By not requiring approval of building plans before construction, public building control is aligned more closely with private building control by an AI.

Opening up the system to more private inspections with the warranty link rule

In 2007 the system was opened up to approved inspectors not affiliated with the NHBC. The requirement for warranty coverage in the case of residential buildings was maintained, however, through the warranty link rule requiring AIs to provide proof to the local authority that a residential builder had warranty coverage. The warranty link rule is enforced by local authorities who confirm the builder has warranty coverage before it engages an AI. The warranty link rule does not apply to nonresidential construction. In these cases, approved inspectors can provide inspection services for builders of commercial, institutional, and industrial buildings without a warranty guarantee.

Plan certificates issued by Approved Inspectors constitute final approval

Under the U.K. building control system, AIs retained by builders to review construction plans and inspect buildings during construction generally review and inspect all aspects of such work. AIs can only inspect work for the types of buildings for which they are approved and registered.

The AI may issue a plans certificate to confirm that building plans comply with the Building Code, but most builders do not request this. If a plans certificate is requested by the builder it must be filed with the municipality, which is not entitled to challenge this document. The AI and the builder develop a schedule of inspections at the beginning of the project. The number of inspections depends on the type of construction and may range from just a few to 7 to 10 inspections for a single-family home to many more for a high-rise building. After construction is complete, the local authority also receives and files the completion certificate. This certificate indicates that the AI completed its review of the building and is satisfied that the construction appears to comply with the Building Code and is complete.

Introducing a centralized registration process for Approved Inspectors

To become an approved inspector, an individual or firm must meet the requirements for registration set by the Construction Industry Council (CIC). The government has given this body responsibility for administering the registration system for AIs, including both qualification and disciplinary aspects. AI qualifications currently entail demonstrating competence, through a combination of experience and credentials and passage of an interview conducted by the CIC.

Liability coverage for Approved Inspectors

In addition to registering, AIs must carry the required level of errors and omissions insurance needed to cover any personal injury and economic loss attributable to its negligence. The required level of insurance is based on the size of the AI firm and its expected volume of work. A 10-year runoff period covers any claims that may arise after the AI retires or ceases to be registered. The 10-year runoff period is an attempt to provide insurance coverage over the full liability period established by the 15-year ultimate liability rule, prescribed by law, that protects designers, builders, or AIs from tort suits for negligence for a period of up to 15 years after the supposed negligent action.

Building control fees as tools to level the playing field between the public and private sectors

Under regulations intended to provide a level playing field between local building authorities and AIs, building control fees collected by local building authorities are limited to the cost of technical building control services (plan review and inspections). While building-permit fees can't exceed the cost of providing these services, they also cannot be lower than the cost of the service. That is, the municipality cannot subsidize its local building authority to keep fees low. The local building authority can, however, receive subsidies from the local authority for providing administrative and record-keeping services necessary to providing builders with the choice of whether to engage an AI or the local authority. These procedural functions support the competitive building control system, and unlike plan review and inspections, they are not considered fee-generating activities.

Maintaining builder's responsibility for building-code compliance

Despite the requirement for third-party or independent inspection of building construction, the primary responsibility for building-code compliance rests with the builder. This means that if public or private building control services fail to catch a building defect, the builder is still considered primarily responsible. The role of building control is to reduce the likelihood of building defects and the associated liability for the builder.

While builders are recognized has having primary responsibility for compliance with the Building Code, a condition of practice requires builders to meet certain minimum standards for technical competency, knowledge, or experience or to carry liability insurance or warranty coverage. Any person can design any building. Professional bodies have the right to title rather than the right to practice. A local building control authority cannot refuse to accept a building design because it has not been professionally designed.

Making nonmandatory market mechanisms work as insurance or warranties

Certain market mechanisms exist to encourage builders to carry insurance or warranties. Homes will generally have warranty coverage, for example, because the council of mortgage lenders requires warranty coverage for home builders as a condition of providing mortgage financing for new home owners. In the case of larger buildings, typically designed by professional designers, building owners and designers will often require builders to carry some form of warranty, surety, or other insurance. Individual warranty providers impose their own qualification and registration requirements for persons wishing to be covered by the firm's warranty program. The voluntary professional associations for technologists, architects, and engineers also impose their own registration and disciplinary requirements.

Outcomes Achieved

Public-private competition results in faster services

The introduction of private building control through the AI program has resulted in improved service for builders. The consensus has been that introducing a private-sector alternative to public building control has changed public-sector attitudes toward building control from a bureaucratic mindset of finding reasons not to approve construction to a more service-oriented philosophy. According to Paul Everall, chief executive of the Local Authority Building Control (LABC), the association representing local building authorities, "There is a likely improvement in local authority service as a result of competition from the Approved Inspector program."

On the other hand, competitive pressures in a relatively weak construction market have put pressure on both public and private inspectors to reduce the level of plans review and construction inspection services. This pressure to secure market share affects both the public and private sectors. The absence of qualification or registration requirements for public building control authorities, and the absence of possible disciplinary action or renewal difficulties, may help public control bodies to cut inspections and fees more than private approved inspectors can.

Several private and public-sector building control providers enter the market

The United Kingdom now has about 60 active approved inspectors, including several approved inspection firms. One firm, the warranty provider NHBC, currently dominates the residential market, providing warranty coverage for 80 percent of home builders though a network of regional or local offices. This firm is registered both as a warranty provider and as an approved inspector, and NHBC provides building control (inspection) services to most of its residential warranty clients. Other major new home warranty providers include Premier Guarantee, which also offers building control services.

Other firms occupy the commercial building market, currently dominated by Butler & Yonge, which provides commercial building control services through a network of regional or local offices. The firm also provides design services through its fire-engineering division. In some of the larger urban centers, local building control handles the majority of commercial building control.

Interestingly, the association representing the local authorities' building control services, the LABC, also provides building control in partnership with local building control authorities.

Competition from the local authority building control

As noted previously, local building control authorities must, by law, be available to provide the full range of building control services. This has not stopped the local building control authorities from trying to compete with the private-sector approved inspectors, however. Where a local building authority is engaged by a builder, site inspections and completion certificates are the responsibility of the local authority. To enable local authorities to better compete with approved inspectors, the LABC provides them with several services. First, it provides a centralized approval service for building plans that can be relied on and used by local building authorities across the United Kingdom; some local authorities, however, also rely on private consultants. Second, the LABC provides warranty coverage, backed by a private insurance provider, for a range of building types, including residential housing, mixed use, and commercial buildings. In this way local building authorities can compete with the private AI firms, who, in some cases, provide an integrated package of warranty and building control services nationwide.

Pooling local authorities' building control resources

To better manage resources and pool the available technical expertise, an increasing number of local authorities have made joint service arrangements. These allow several local building control authorities in a district to share resources for handling plan review or building inspections, helping to ensure that sufficient expertise is available for more complex projects and that sufficient staff can be made available to areas within the district that are experiencing more rapid growth.

Public-private competition: maintaining a level playing field

The building control reforms in the United Kingdom were not just about introducing additional technical capacity and expertise into a public authority building control system facing increased workloads and the challenges of performance codes and accelerating innovation: it was also about introducing public-private competition into the building control system.

As the last several years of experience with a competitive building control system has shown, however, it can be challenging to achieve a level playing field between the public and private building control providers. In some areas, the local building control authority has an advantage, while in others the advantage goes to the private inspectors. Local building authorities can use their control of planning to encourage developers to use local building control, and they can implement fee and inspection reductions to attract business. Approved inspectors have other advantages, however; for example, they can more easily rely on national networks and resources or can focus on larger, more lucrative projects.

Competition versus privatization

AI firms have been approaching local building control bodies with the proposal that the local building authorities subcontract building control to them. Under this model, one or more approved inspectors or inspection firms would be engaged by the local building authority to fulfill its obligations as a backstop provider. The local building control authority would outsource its work to an AI firm, which would conduct the full range of building control activities from plan review to inspections to issuing final certificates. Currently local building authorities only engage consultants or approved inspectors on an as-needed basis.

To date, local building control authorities have resisted this concept. Some see the approved-inspector regime as a direct challenge to the public building control system. More than a hint of "social Darwinism" tinges the battle between private and public building control systems. To date, public building control accounts for a very substantial 70 percent of building activity, although the private-sector share has been growing.

Lessons Learned

Introduction and expansion of private inspection results in faster service

The introduction of the private-inspection option and, in particular, the expansion of private inspection in 2007, has resulted in more customer-focused and faster service. The warranty link rule allowed firms other than the warranty provider NHBC, which previously had a monopoly on private building control, to provide inspection services as long as the builder was covered by warranty coverage. Competitive pressures are acting among private inspectors and between the public and private sectors to reduce the number of inspections and the extent of plan review. This may have the negative consequence of reducing the quality of building control and adversely affecting public safety.

Private inspection increases efficiency

Competition among private-sector building control firms has stimulated interesting innovations in public- and private-sector corporate organization. Local building authorities, for example, are increasingly relying on another building control authority, under the auspices of the LABC, to provide plan reviews and approvals for local building authorities across the country. This arrangement is possible in the United Kingdom because building permits are not required and building control focuses on the construction completion certificate. In the private building control sector, competition has led to the coordination of building control and warranty inspections by firms offering both services. In addition, some corporations offering building control also provide expert design advice on matters such as fire service. The efficiency of these organizational arrangements combining building control with functions often handled by separate organizations has been quite evident; however, their effectiveness in terms of improving outcomes is not immediately clear and requires further review.

Leveling the playing field between private- and public-sector building control is challenging

The U.K. experience shows that it is very difficult, and likely impossible, to establish a level playing field between public- and private-sector building control bodies. The government and the public sector must step in to provide functions and services not provided by the private sector. In the case of building control, the public sector provides a backstop: it provides access to building control for types of construction unattractive to private building control firms or that may be subject to a single monopoly provider. The public-sector building control agencies must therefore carry a burden of serving all comers, which is not imposed on private-sector building control firms that can cherry-pick the most profitable projects.

CASE STUDY: VICTORIA, AUSTRALIA

Competitive Building Control—Clarifying Roles, Ensuring Performance

The current building-permit system in the state of Victoria, Australia, was introduced in 1994 as part of a set of building reforms intended to increase building control efficiency and effectiveness by allowing competition. Under the competitive system, building permits could be issued by private building surveyors (inspectors) as well as by the municipal councils that had previously controlled building permits. The councils' work in issuing permits was widely considered to be lengthy and inefficient. The new competitive system was expected to improve building surveyors' skills and the speed of building-permit approvals. Private building surveyors were allowed to compete with municipal building surveyors on the basis of timing and cost. Compulsory insurance and registration were also introduced to better protect the public when hiring private building practitioners.

Before Reform

The National Model Building Act reforms a complex, bureaucratic building control system

The legislative framework for building control in the State of Victoria is based on the National Model Building Act, initiated in 1990 through the Australian Uniform Building Regulatory Coordinating Council, now the Australian Building Codes Board. This project, completed in late 1991, was intended to serve as the basis for legislative development and to facilitate the adoption of best practices and uniform building regulation in the states and territories. The Model Building Act project arose from concerns that Australia was lagging behind in construction best practices due to its complex, bureaucratic building controls rooted in a nineteenth-century model. The Victorian Building Act of 1993 was strongly influenced by the Model Building Act project.

Key areas needing regulation

Before recommending reforms to the building legislative framework, the National Model Act project analyzed the building sector from an economic perspective to understand how it came to need regulation. One of the key findings was the problem of information availability in the building market. Information asymmetry—the situation in which a seller has more information than a consumer or buyer—is inherent in the building market because most consumers enter it only infrequently and many building defects are only detectable by trained eyes. This information asymmetry places consumers at an information disadvantage in the market for building services. Other problems evident in the market for building services were incomplete risk markets (most insurance policies excluded certain types of damages to homes) and high transaction and information costs. The analysis of the building sector found that regulation was necessary as a resource for and guarantee to building occupiers and to other government agencies seeking the desired level of building safety, health, and amenities.

Reform themes emerging from the review

Following this analysis, the Model Building Act project made recommendations for improving the current building regulatory system. Two of the main recommendations were to allow privatized building approvals, to better respond to cyclic changes in approval demand and reduce permit approval times, and to simplify the building permit process.

Key Reform Goals and Measures

The Victorian Building Commission

The 1994 reforms introduced through the Building Act of 1993 established the Building Commission as a new statutory authority to oversee building control, including a new competitive building-permit system. The competitive system allowed private surveyors to compete with public-sector surveyors. The functions of the new commission include enforcing compliance with the Act and regulations, participating in the development of national building standards, monitoring developments relevant to building standards in Victoria, monitoring the building-permit levy-collection system, informing and training the industry, resolving disputes, and advising the minister in relation to his or her functions and powers under the Act.

The Building Practitioners Board

The Building Act also established four statutory bodies under the authority of the Victorian Building Commission. These boards play an important role in Victoria's system of building control and are administratively supported by the Building Commission. One of these bodies is the Building Practitioners Board, which oversees the quality and standard of Victoria's building industry professions. Under the Building Act all building practitioners must be registered with the Building Practitioners Board, must keep their registration current, and must have appropriate insurance.[48] The Building Regulations outline the various categories and classes of building practitioner.[49] The qualifications for registration are based on the nature and extent of the practitioner's education, training, and experience.

In Victoria, architects managed to remain exempt from oversight by the Buildings Practitioner Board and continue to regulate themselves. Under the rules of the Board, registration must be renewed every three years.[50] One of the responsibilities of the Board is to provide advice to the government on requirements for qualifications and experience. In addition, the Board supplies Certificates of Consent, an individual's written approval to act as an owner-builder on their own land in the State of Victoria.[51]

Local councils as administrators and enforcement agencies

After the 1994 reforms, local councils continued to be responsible for administering and enforcing parts of the Act and for appointing municipal building surveyors who, along with their private counterparts, authorize and oversee building works to ensure their safety

[48] See http://www.buildingcommission.com.au/www/html/957-insurance.asp (last checked on September 17, 2007).

[49] See http://www.buildingcommission.com.au/www/html/982-building-surveyor.asp for documentation of categories (last checked on September 17, 2007).

[50] See http://www.buildingcommission.com.au/www/html/853-registration-renewal-after-three-years.asp for documentation on renewing a registration (last checked on September 17, 2007).

[51] See http://www.buildingcommission.com.au/www/html/284-choosing-to-be-an-owner-builder.asp for documentation on acting as an owner-builder (last checked September 17, 2007).

and compliance with building standards. Municipal building surveyors also have additional responsibilities for community safety and for enforcing statutory building requirements.

Competitive public and private building control

One of the key reforms introduced in Victoria in 1994 was the competitive building-permit system. The competitive system, part of a package of reforms designed to speed up the building-approval system, allowed registered private surveyors to compete with public-sector surveyors. Prior to the reforms in 1994, building permits were issued only by local councils. The new competitive system removed municipal building surveyors' monopoly on issuing building permits and opened the market to private building surveyors (inspectors), who must be registered and insured to protect the public's interests.

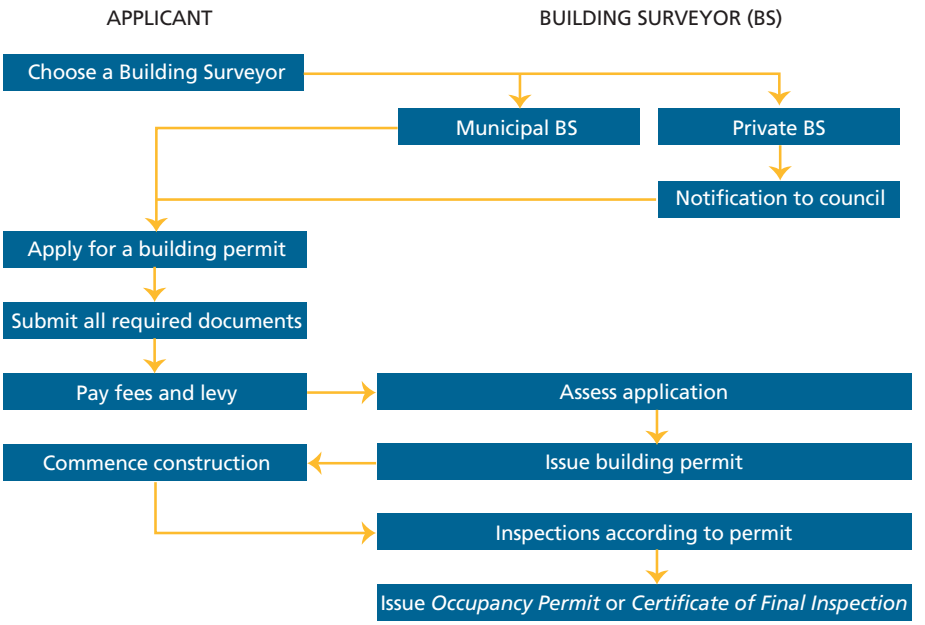
Compulsory builder's registration and insurance

In addition to instituting and providing for the registration of private building surveyors, the 1994 reforms introduced compulsory registration and insurance for builders and certain other categories of building practitioners. The Victorian framework is still considered the leading model among Australian states.

A new building permit process

As a result of the 1994 reforms and introduction of a competitive building-permit system, two approval and inspection options, shown in figure 8.1 below, are available.

Figure 8.1. Paths for Building-Permit Approval and Inspections



Source: The authors.

Accountability in building regulations responsibilities

The 1994 reforms placed a heavy emphasis on accountability and outlined some of the responsibilities of the actors involved in the building process. According to the Building Act, owners are responsible for the building-permit application and for informing the building surveyor of modifications that might influence the issuance of the building permit; when an owner acts as owner-builder, the owner has same responsibilities as a contractor. Designers are responsible for producing functional working drawings and specifications that comply with applicable law and reflect owners' requirements, and they may apply for the building permit. General contractors are responsible for overall construction, including buying, scheduling, workmanship, and managing subcontractors and suppliers; for contact with the building surveyor; and for site inspections (conforming to the building permit). Subcontractors are responsible for their portion of the work (mechanical, electrical, drywall, excavation, and so on). Provinces and territories are responsible for developing and updating the Building Regulations and monitoring (local) building control. Municipalities within Victoria must employ at least one building surveyor, and the building surveyor is responsible for controlling building activities.

Outcomes Achieved

An increased number of building permits issued by private inspectors

Since the 1994 reforms, the number of permits issued by the private sector has grown steadily. In 1997, private building surveyors issued 57 percent of the total number of building permits, representing 73 percent of the total value of approved building work. By 2009–10 these figures had increased to 84 percent and 93 percent, respectively. The lack of effective monitoring of private surveyors, however, has left the system open to criticism that it fails to protect the public by ensuring safety, competence, and compliance with the Building Act.

Local authorities not issuing permits outside their boundaries

Many local authorities have reduced their role in issuing building permits, leading to a significant rise in the activities of private building surveyors across Victoria. Although the reforms introduced in 1994 allow local authorities to issue building permits outside their municipal boundaries, few have done so.

Victorian Competition and Efficiency Commission inquiry

In 2005, the Victorian Competition and Efficiency Commission (VCEC) conducted an inquiry into housing regulation in Victoria. The inquiry found that, while the regulatory framework for housing regulation had served Victorians reasonably well, a significant opportunity for improvement existed, particularly in establishing a more closely defined regulatory environment and improved performance reporting to enhance transparency and accountability. Specifically, the inquiry identified the need for improved performance reporting by the Building Commission, and it recommended publication of the commission's rationale for its monitoring and enforcement strategy and performance indicators.

Review by the Victoria Auditor General's Office

The Victoria Auditor General's Office conducted a review in 2011 of the building-permit process. The report highlighted some key problems with the current system, including lack of transparency and accountability; lack of defined targets for effectiveness monitoring; and poor public reporting by the Building Commission on its successes or the effects of its regulatory efforts.

Six years previously, the Victorian Competition and Efficiency Commission had found that the Building Commission had not given enough priority to evaluating the effectiveness of the building control system. In 2011, the Victoria Auditor General's Office found that a basic monitoring framework had yet to be established. The Building Commission responded to the Victoria Auditor General's Office by outlining a new audit program, which should ensure regular scrutiny of local Government files. While the Building Commission accepted the Auditor General's findings, it released a statement asserting there was "no evidence that buildings are at risk of falling down or causing sickness or injury due to the quality of the building-permit system."

Lessons Learned

Lack of effective monitoring of private surveyors leaves the system open to criticism

Following the 1994 reforms, local government authorities in Victoria sought to reduce their role in issuing building permits. This led to a significant rise in the activities of private building surveyors across the state. The introduction of a competitive system did not result in local councils pursuing permitting work outside their municipal boundaries, however, even though the reforms allowed such activity. The lack of effective monitoring of private surveyors by government has left the system open to criticism that it fails to protect the public through ensuring safety, competence, and compliance with the Building Act.

Need for greater understanding of the role of local governments

As noted earlier, the 2011 Auditor General's Office report highlighted some key problems with the current system, including a lack of accountability and inadequate performance indicators and auditing. The report also found that local government councils currently have no systematic review process for permits lodged by private building surveyors. Many local governments are unsure of their role in dealing with private surveyors, and some building works consequently do not meet basic standards. Greater understanding of the role of local governments in dealing with private certifiers is needed. The Auditor General's Office proposed a new system of risk-based auditing targets covering both municipal and private building survey activities and requiring a two-year cycle of council audits.

Greater reliance on private practitioners to comply with regulations requires clarity on their roles and their responsibilities

The Victorian reforms shifted responsibility to building practitioners, such as building designers and contractors, while opening up the option for builders to directly appoint private-sector building inspectors. Such a system relies heavily on the competence, performance, and honesty of private-sector practitioners to ensure that public-safety and other public goals are met. The motivation for these reforms was to improve efficiency in the building-regulation system. While the Commission has not offered specific measures for judging improvements in process efficiency, anecdotal information suggests that improvements have been made. Building innovation has also been enhanced, particularly where reliable builders and designers engage private surveyors.

Public safety, compliance with regulations, and other important public objectives are also important, however, and it is less clear that these objectives are being met, as indicated by Auditor General's Office report. A key lesson is that with greater reliance on practitioners to comply with regulations and greater reliance on private-sector inspections, the need becomes greater for clarity regarding roles and responsibilities and for performance auditing. Performance auditing requires effective performance indicators and auditing procedures.

Glossary

accreditation system

The term *accreditation system* describes a national framework through which a national accreditation body attests that a conformity assessment body (e.g., a testing laboratory, inspection body, or certification body) meets the requirements for such bodies as set by standards; where applicable, additional requirements, e.g., those set out in relevant sectoral schemes, may be necessary to carry out a specific conformity assessment activity.

EU Regulation Nr. 765/2008, for example, establishes a legally binding system of accreditation in Europe. Relevant standards are the ISO/IEC 17000 series.

best practice country

The term *best practice country* here specifically refers to countries that combine efficient and streamlined building permitting procedures (measured by *Doing Business* reports) with strong regulatory outcomes. Strong outcomes are typically reflected in the visible quality of the finished buildings, a high degree of compliance with internationally recognized energy efficiency standards, and strong records showing the structural resistance of construction to natural hazards, such as earthquakes or landslides.

Japan and New Zealand, for example, are considered best practice countries, as both combine a positive Doing Business rankings and strong histories of keeping buildings and their occupants safe despite strong and continuous seismic activity.

building controls

The generic term *building controls* refers to plan reviews and inspections carried out during construction and postconstruction phases. The scope of this report covers only inspections described in *Doing Business 2013*.

building code official

The term *building code official* is used here to describe public officers in municipalities or specialized state or local agencies specifically tasked with reviewing compliance with building codes of a building's technical plans. Building code officials may therefore be involved in plan checks but also in inspections, during and following the construction phase, when they may be asked to review the compliance of the finished building with the relevant code and technical standards.

In certain jurisdictions, such as France and Canada, for example, building code officials can have a larger scope of responsibilities, as they may be asked to check compliance with zoning requirements.

building-practitioner–focused enforcement

Building-practitioner–focused enforcement refers to the enforcement system in countries that have construction permit systems relying strongly on the participation of private professionals, usually through the use of private practitioners who carry out third-party reviews at the plan-review or inspection stages. Countries moving toward building-practitioner–focused enforcement systems invest more heavily in robust qualification and accreditation systems to offset the more limited control function of public enforcement agencies.

Colombia, for example, has since 1995 enforced a dominantly building-practitioner strategy for the review and issuance of permits by certifying specialized building professionals to carry out these tasks.

certification

The term *certification* means the attestation by a third party of compliance or conformity with standards or other requirements. Certification may relate to products, processes, systems, or persons. Usually a certification system is governed by an accreditation system, in which case certifications may only be issued by accredited certification bodies.

conformity assessment

The term *conformity assessment,* as applied in construction, is a generic term usually referring to the regulations and process of obtaining the final occupancy permit for a new building. The process of conformity assessment may vary according to the size and/or the specific risk category of the building. In other words, the level of controls and scope of verification, as well as the number of control agencies involved in the final conformity assessment process, may vary in accordance with the level of risk presented by the completed building.

In Moscow, Russia, for example, a two-step process for conformity assessment involves, first, a preliminary clearance from an approval commission composed of various members, such as the sanitary services, the local government, and the Prefecture, and second, the issuance of a formal occupancy permit granted by the Moscow State Committee of Construction Supervision.

developer

The term *developer*, as used in this report, refers to a project owner or construction-permit applicant. These terms are considered interchangeable.

Doing Business scenario

Doing Business scenario refers to the standardized case study used by the *Doing Business* Report for its indicator on dealing with a construction permit. The scenario allows Doing Business to measure consistently across 185 economies the number of procedures, time, and cost required to build a warehouse. The procedures considered include submitting all relevant project-specific documents (for example, building plans and site maps) to authorities; obtaining all necessary clearances, licenses, permits, and certificates; completing all required notifications; and receiving all necessary inspections. Finally, the scenario includes procedures necessary to register the property so it can be used as collateral or transferred to another entity.

Doing Business contributor

Doing Business contributor refers to the network of in-country professional experts providing detailed information related to the indicators measured by the *Doing Business* reports.

For the indicator on dealing with construction permits, for example, the Doing Business team would typically rely on feedback provided by engineers, architects, lawyers, and other building practitioners regularly exposed to the processes measured by the indicator.

enforcement agencies

The term *enforcement agency* is a generic term describing all public entities, at the national or regional level, with a stake in the construction-permitting process in the preconstruction, construction, and postconstruction phases. It often refers to the main local entity responsible for issuing construction permits, namely the municipality or the designated local agency.

performance-based versus prescriptive building codes

The term *performance-based building code* describes modern building codes that specify the desired technical outcome rather than the specific means by which the outcome should be achieved. This approach was initially articulated by the Nordic Committee of Building Regulations (NKB) in 1978. North America and Europe have adopted this approach with some adjustments and with the overall goals of not inhibiting innovation; speeding up the construction cycle, including permitting; eliminating complexity in existing codes; and facilitating regulatory reform and globalization. Performance-based codes are increasingly replacing older prescriptive building codes.[52]

The International Building Code (IBC), for example, a model building code published in 2000 by the International Code Council, is predominantly performance based, whereas Russia's SNIP, developed in the 1970s, remains marked by a largely prescriptive approach. Countries with prescriptive building codes often have complex administrative procedures.

plan checks

A *plan check* represents the activities carried out by local and state authorities during the initial review of plans, drawings, and calculations to assess the building project's compliance with national building standards and codes. A plan check is similar to a technical or expert review. Plan checks can be performed by public or private entities as third-party reviewers.

public enforcement

The term *public enforcement* in the context of construction permits refers to a system whereby the enforcement of building control regulations is carried out predominantly by municipal and public-owned entities.

Hungary and the Czech Republic, for example, prior to their accession to the European Union, relied solely on public entities to enforce building-control regulations. Both countries are now transitioning away from systems in which public agencies alone were tasked with technical reviews and inspections. Private building practitioners are now empowered by law to carry out a number of tasks in the construction permitting process. The Czech Republic has been using private authorized inspectors since 2007.

self-confirmation system

The terms *self-confirmation* or *self-confirmation system* describe a construction-permit system placing complete reliance on the construction project's designers to comply with building-code requirements. Countries with self-confirmation systems do not have independent third-party reviews or controls. The role of regulators is usually restricted to approving the builder's quality-assurance plan and carrying out audits on a selective basis. In a typical self-confirmation system, the project's designer has primary responsibility for any failure to comply with the building code. Some countries, such as Austria, have systems recognizing a degree of self-confirmation, but only for low-risk building applications. Until recent reforms, Norway provided an example of a country with a self-confirmation system in place for construction permits and building controls.

third-party review

A *third-party review* consists of having an independent party, other than the designer or the contractor, review a building design to assess its compliance with building codes and other relevant regulations. Modern, effective construction systems increasingly involve licensed or approved private engineers, often delegated by the municipality or the responsible local enforcement agencies, to fulfill this function.

The 2007 building code in the Czech Republic, for example, sanctioned the use of private authorized inspectors to carry out third-party technical reviews for plan checks.


IFC
International
Finance Corporation
World Bank Group


THE WORLD BANK


MIGA
Multilateral Investment
Guarantee Agency
World Bank Group