

A Modern Building Regulatory System: White Paper

Background

British Columbia's building regulatory system oversees a dynamic construction sector that in 2010 accounted for 2.9 per cent of provincial GDP and 4.7 percent of provincial employment. The Province adopts a Building Code ("the Code") that applies throughout BC (except in the City of Vancouver) and is administered and enforced by 140 local government building departments, each with its own policies and procedures, levels of capacity and ways of interpreting Code provisions. The concurrent authority provisions of the *Community Charter* require local governments to obtain Provincial approval of local building standards that vary from the Code; however, it also provides a mechanism for building standards to be adopted under other authorities.

The building regulatory system has been the subject of several major Provincial reviews over the past 25 years. Reviews have led to more accountability for complex building design and construction on the part of architects and engineers and better protection for homeowners. The Modernization Strategy, which began in 2004, made recommendations to improve the system's effectiveness after extensive stakeholder consultation. However, as priorities shifted to 'greening' the Building Code and developing new Code provisions for mid-rise wood-frame construction, implementation of these recommendations was deferred.

In consultations that began in spring 2011, stakeholders confirmed that major issues raised in previous reviews are still unresolved and continue to produce major impacts. These include:

Issue	Impacts
Inconsistent Code interpretations between and within local government jurisdictions	Complicates development and construction; a major cause of increased costs to business
Local government building standards that go beyond the Code	Complicates development and construction; can create delays and increase costs Complicates compliance with international and interprovincial trade agreements, which promote uniform standards
Lack of centralized decision making on Code matters , with each local government making its own decisions on a new product or technology	Results in wide variation in decisions, with each jurisdiction evaluating the same issue Can result in local government decisions not to approve new technologies and products (due to risk aversion), limiting flexibility and innovation
Poor compliance with Code provisions such as fire protection in some high-rise residential, commercial and other large complex buildings	Can jeopardize the health, safety and/or energy efficiency of buildings

A Modern Building Regulatory System: White Paper

Issue	Impacts
Lack of skills or Code knowledge among some system participants	Contributes to poor quality construction and poor compliance with Code provisions, which jeopardizes the health, safety and/or energy efficiency of buildings

Appendix B describes research that further substantiates some of these issues.

In other jurisdictions, such as Alberta and Ontario, provincial governments play a more active leadership role. Specific building-related legislation defines these jurisdictions' roles and responsibilities as well as those of other system participants.

A uniform Building Code gives these jurisdictions sole authority to adopt building standards, so that the standards are the same wherever buildings are built. Provincial bodies provide support services such as binding interpretations of Code provisions; product evaluation and approval; qualification and registration of practitioners; training; building department accreditation; dispute resolution and review of Code change proposals. In Alberta, some of these services are funded by levies on the construction sector that are collected with building permit fees.

Provincial Leadership in a Modern Building Regulatory System

Provincial leadership, in partnership with local governments and the construction sector, is the foundation for a modern, streamlined building regulatory system. Both local governments and industry have asked the Province to step up its involvement in the system to resolve longstanding issues.

Based on previous consultation, advice and recommendations, the Province has developed a set of interdependent actions and proposals that establish Provincial leadership and work together to support a modern building regulatory system. Appendix A describes the actions and proposals in detail.

A **uniform Building Code** would give the Province sole authority to adopt building standards, ensuring that standards are substantially the same throughout BC. Both binding and non-binding **Provincial Code interpretations** provide necessary support for the uniform Code.

As building construction becomes increasingly complex, technology advancements lead to more proposals for alternative solutions and the use of new products and assemblies that can decrease costs and improve affordability. A Provincially-established **alternative solution and product evaluation body** would be available to assist building departments with these decisions, creating efficiencies by eliminating multiple review processes. Decisions on alternative solutions and a registry of acceptable products and assemblies would be made available to all building departments.

Third-party random audits would provide information on the level of Code compliance and the effectiveness of Code administration, establishing a valid evidence base for changes to improve safety and increase efficiency.

Development of an **online portal** is being considered to streamline the building regulatory process and provide a single comprehensive information source.

A Modern Building Regulatory System: White Paper

Minimum ***qualification requirements*** for residential builders of four units or less and for building officials would improve the competency of key system participants.

How Could This Be Funded?

One option for funding the proposals would be a levy on construction. The levy could either be a percentage of the cost of construction or a flat rate and would be collected when the building permit is issued. User fees would also be considered to cover part of the costs of alternative solutions and product evaluations.

The Building and Safety Standards Branch of the Office of Housing and Construction Standards is leading this initiative. If you have any comments you would like to share, please contact us at:

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Appendix A: Proposals for a Modern Building Regulatory System

Uniform Building Code

Under a uniform Building Code, the Province would have sole authority to adopt building standards. The Province would review any proposed variation; if approved, the variation would be implemented through either a Code change or a Provincial regulation. This is consistent with the building regulatory framework in other jurisdictions.

Existing local bylaws that include building standards would have a transition period to achieve uniformity with the Building Code. During the transition period, the Province would work with local governments and the construction sector to find solutions to key issues like fire sprinklers that would increase consistency while addressing local needs.

Code Interpretations

The Province will expand its capacity to provide credible, non-binding interpretations at Code users' request.

The Province will issue binding interpretations (directives) on topics of concern to Code users. A directive clarifies the meaning of a Code provision that may commonly be interpreted in different ways.

Alternative Solutions

The number of alternative solution submissions has grown since BC introduced objective-based requirements in the 2006 Building Code. While an alternative solution may be the intellectual property of the individual who developed it, the vast majority are simply different applications for a relatively small number of principles, often related to use and egress or combustibility. Removing the current uncertainty about the acceptance of these applications of underlying principles from one jurisdiction to the next could greatly expedite innovation and the acceptance of approaches that have been successful elsewhere.

The Province is developing a guide to alternative solutions. It will help proponents develop alternative solution submissions and assist local governments in the evaluation of alternative solution submissions and associated risk assessment. Standardized schedules for alternative solution submissions are also under development.

The Province would establish an independent alternative solution evaluation body of technical experts. Local governments uncertain about the acceptability of alternative solutions or those without necessary expertise could refer submissions to this body of experts.

Building Products and Assemblies

It has been difficult for new products and assemblies to gain acceptance in many BC jurisdictions. Defining acceptable products and assemblies for use in BC construction would go a long way towards creating market certainty and a level playing field.

Establishing a credible, multi-stakeholder process for considering products and assemblies for acceptance would be a key to success. The alternative solutions body of experts referred to above could also determine what evidence would be required for

A Modern Building Regulatory System: White Paper

considering a product or assembly for acceptance and could rule on the adequacy of evidence presented.

A registry of acceptable products and assemblies could significantly reduce the number of contentious alternative solutions by accepting the principles behind elements of assemblies involving unconventional products. It would also likely generate a significant amount of BC research activity by building product manufacturers.

Third-Party Random Audits

In order to fulfill its leadership role in the system, the Province needs access to quality information on the level of Code compliance and the effectiveness of Code administration. Currently, this information is largely unavailable. Third-party random audits are a necessary tool for supplying this information. It is expected that 60 audits would be sufficient to produce statistically valid data.

Initially, audits would focus on high-risk aspects of complex (Part 3) building design and construction, establishing a baseline for Code compliance. Audits would pinpoint areas of non-compliance and ineffective administrative processes and help develop targeted measures to address them. Subsequently, audits would be used to selectively monitor the system and measure its performance.

Audits would consist of a combination of site visits during construction and review of project documentation, including design drawings. Code compliance would be measured through a review of “key indicators” that would identify issues in high-risk areas of Parts 3, 4, 5, 6 and 7 of the Building Code. Audits would also include observations on local government and registered professional Code administration processes.

Where non-compliance is observed during an audit, this information would be provided to the general contractor, the registered professional and the local building department for action. If any key indicators are negative, this could potentially trigger a more thorough audit.

Online Portal

Experience from other jurisdictions indicates that successful online portals are built in collaboration with stakeholders. The first step in development of an online portal would be consultation to determine what system participants need.

An online portal could potentially include:

- “One Window” online, interactive access to all Provincial codes, standards and regulations.

Ultimately, the portal could also provide access to:

- a repository providing historical and current information for individual sites including the state of progress on development projects;
- local government permits and policies related to construction, renovation and demolition;

A Modern Building Regulatory System: White Paper

- interactive instruction/training modules on how to comply with relevant regulations;
- “One Permit” – an e-fileable application to begin a development project, initially including all Provincial permits required, and ultimately extending to permits of participating local government jurisdictions. The intention would be to enhance the complete chain of construction-related transactions to make them all transparent and trackable, including e-filing of inspection reports and sign offs; and
- enhanced e-engagement with stakeholders, including forums for exploring issues and development of new regulatory requirements.

Stakeholder Advisory Body

Minister-appointed construction sector and local government representatives would advise on matters related to the building regulatory system.

Qualification Requirements

Based on task force recommendations from the “Raising the Bar” collaborative process, increased competency for residential builders of four units or less will be achieved through mandatory qualifications for licensing, including continuing professional development (CPD). It is proposed that increased competency for building officials be achieved through mandatory certification, including CPD. The Building Officials Association of BC, an accredited certification body, would administer the program.

The need for Code knowledge or skills qualifications of other system participants would be determined through the proposed third-party audit program.

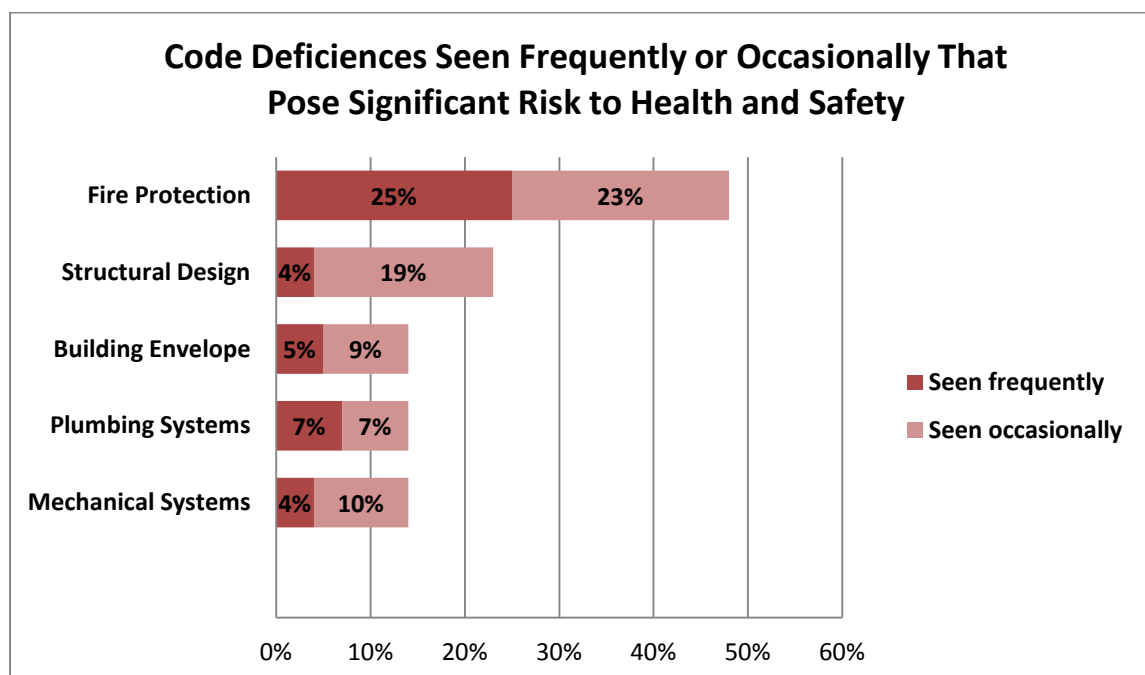
Appendix B: Research Results

Stakeholder survey: highlights

The Ministry conducted a survey of key stakeholder groups (architects, engineers, technologists, contractors, building officials) in summer 2011 for their views on Code compliance and Code administration processes such as reviews of building design, inspections, Code interpretations, etc.

Code compliance:

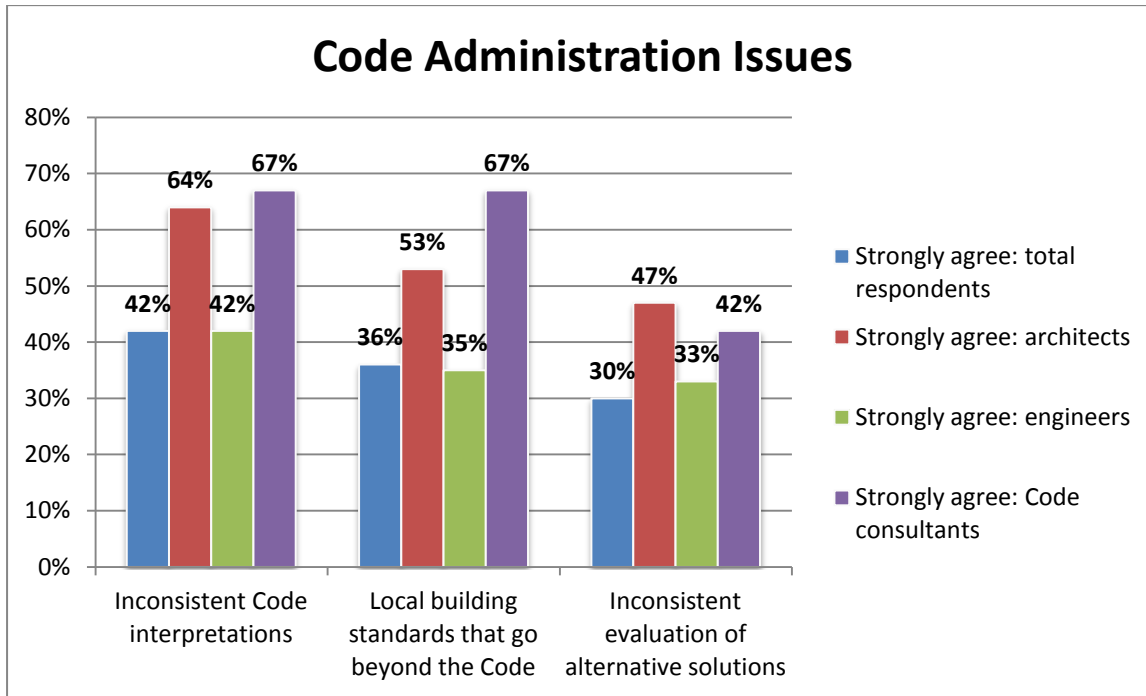
The survey asked stakeholders how frequently they saw Code deficiencies in large complex building projects, and how much risk the deficiencies they saw posed to health and safety. Responses related to Code requirements for fire protection are cause for concern—over 47 per cent of 304 respondents occasionally or frequently saw Code deficiencies that they think represent a significant risk to health and safety. Survey respondents see fewer significant Code deficiencies related to structural design, building envelope and mechanical and plumbing systems.



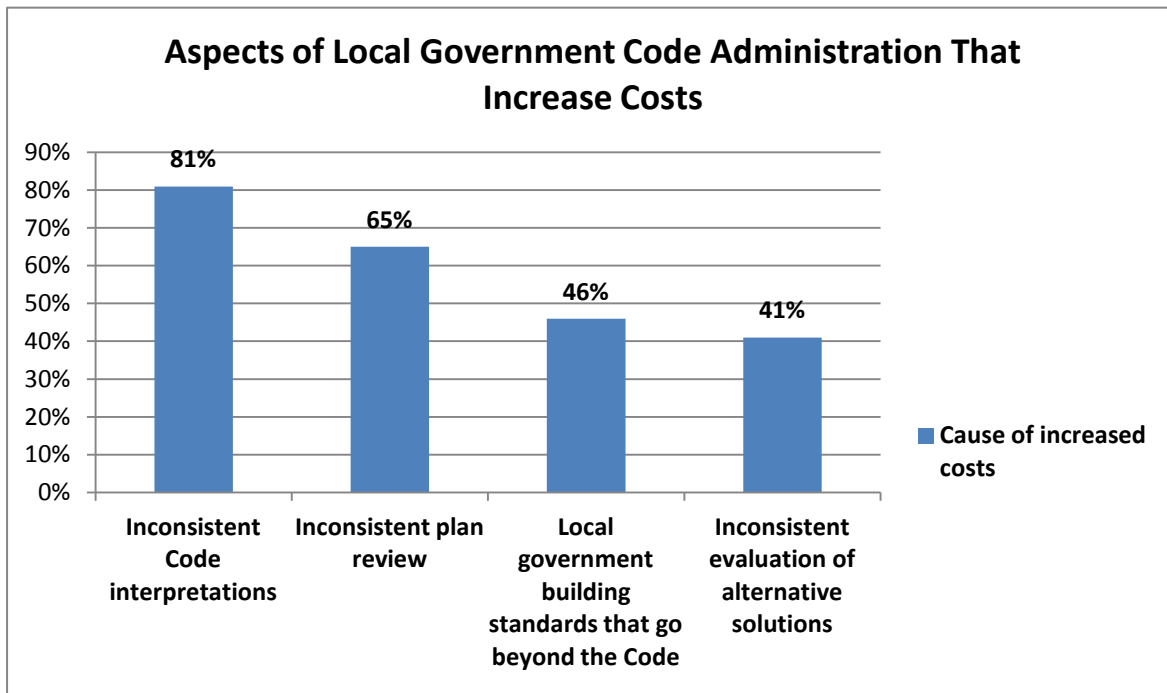
Code administration:

The survey also asked stakeholders if they had issues with any aspects of Code administration. In addition to architects, engineers and Code consultants¹, the 395 respondents included building officials and architectural and engineering technologists and technicians. The table below shows the percentages of the total respondents and the percentages of responding architects, engineers and Code consultants that strongly agree that inconsistent Code interpretations, varying local building standards and inconsistent evaluation of alternative solutions are issues for them.

¹ Code consultants are architects or engineers who provide consulting services such as Building Code compliance review, fire protection engineering analysis and development of alternative solutions to building projects. They are considered to be the Building Code experts of the construction sector.



Respondents were also asked if inconsistency in Code administration practices had increased the costs to a business they owned or were involved with. For the 138 stakeholders who responded to this section, inconsistent Code interpretations were the principal cause of increased costs. Inconsistent plan review procedures and requirements, local building standards that go beyond the Code and inconsistent evaluation processes for alternative solutions also increased costs.



A Modern Building Regulatory System: White Paper

While some respondents said it was difficult to quantify the costs to business of inconsistency, others gave specific examples. Costs were expressed either in dollar amounts, ranging up to tens of thousands of dollars per project, or as an overall percentage of costs, ranging from 5 percent to 35 percent. A few respondents indicated that the costs to business were not simply dollar amounts, but included the impact of missed opportunities in markets with shorter building seasons, project bankruptcies due to delays and the cost to professional reputations when projects were delayed and costs increased. A number of respondents also stated that the costs to their businesses were simply passed on to the building owners, and in turn, on to the final consumer.

Code deficiency analysis: highlights

In a review of condition assessments performed by consulting engineers on buildings completed since 1999, 30 percent of 40 buildings had fire or structural deficiencies that could represent a major safety risk. Since these buildings are occupied, these are deficiencies that building departments and architects and engineers involved in design and construction did *not* detect.

The Ministry is also collecting data from a sample of local government building departments that use standardized design review and inspection checklists, to track how many and what kind of Code deficiencies they find over a set timeframe.

Online public review responses: highlights

There were 41 responses to the questions on proposals for audits and an alternative solution evaluation body. The majority of respondents were either building officials (39 percent) or architects / engineers (25 percent). 100 percent of building officials and 60 percent of architects / engineers supported the audit proposal, while 81 percent of building officials and 70 percent of architects / engineers supported an alternative solution evaluation body.

Appendix C: Previous Reviews of BC's Building Regulatory System

Previous Reviews:

The reviews listed below illustrate the extent to which systemic issues have been studied, stakeholders consulted and recommendations made over the past 24 years.

Commission of Inquiry, Station Square Development (Closkey Commission),

1988: The Commission was prompted by a roof collapse in Burnaby, and largely focused on issues related to the practice of structural engineering. One of the commission's major recommendations was the province-wide use of standardized Letters of Assurance, in which architects and engineers assure that the design and construction of complex buildings are Code-compliant. This recommendation was implemented in the 1992 BC Building Code.

Options for Renewal, 1994-1996: This review was intended to solicit stakeholder feedback on issues in the system and to recommend actions in response to the issues raised. In 1995, Options for Renewal was merged with a parallel review, which focused on building systems such as electrical and gas equipment, in a single ongoing review of the entire safety system, the Safety Systems Review. Work on the recommended actions was never completed.

Safety Systems Review, 1995-1997: Its recommendations were intended to apply to the entire safety system, including building construction, but were ultimately applied only to a group of specific safety technologies such as gas, electrical and elevators. The transformation of the safety system is in some respects a model for change to the building regulatory system.

Commission of Inquiry into the Quality of Residential Condominium Construction

in BC (Barrett Commission), 1998 and 2000: The Commission was appointed in response to the "leaky condo" crisis. A major outcome was the creation of the Homeowner Protection Office (HPO) in 1998, but numerous recommendations related to increased oversight of construction and the competency of system participants were never implemented.

Modernization Strategy, 2004-2007: After extensive stakeholder consultation, this review made proposals for major changes to Building Code application and enforcement; liability; information management and system performance; and competency. While Cabinet approved the changes in principle, which led to some minor legislative amendments in 2007, fundamental change was deferred as priorities shifted to 'greening' the Building Code and provisions for mid-rise wood-frame construction.

Raising the Bar: Enhancing Professionalism in BC's Residential Construction

Industry, 2005-2008: A 2005 HPO discussion paper asked stakeholders for feedback on a proposal for minimum qualifications for residential builders. The HPO subsequently convened an industry task group that made recommendations for a new qualification system. Work on the recommendations is in progress.

Key Components of a Modern, Effective Building Regulatory System: Implementation

The table below lists key components of a modern, effective building regulatory system, grouped by topic. For each component, the table shows when previous reviews recommended its implementation and whether it is included in these proposals. Note that recommendations made in 1997 by the Safety Systems Review were intended to apply to building construction, but were ultimately implemented for safety technologies only.

Key: ✓: Implemented previously or included in these proposals

Key Components of a Modern, Effective Building Regulatory System	Previously Recommended in:	Included in These Proposals in:
Uniform Building Code and supporting services:		
Uniform Building Code	1996, 1997	✓
Directives (binding Provincial Code interpretations)	1996, 1997, 2007	Legislative authority has been enabled; implementation is in progress
Consistent Code interpretations and evaluation of equivalencies (alternative solutions)	1996	✓
Provincial-level product approval	1996, 1997	✓
Code administration:		
Centralized, uniform administration and application of codes and standards	1997	Audits will identify what changes may be needed to strengthen Code administration and professional review
Improved enforcement tools	1997*	
Additional third-party inspections to augment architects' field reviews of construction	1998	
Mandatory Code administration and enforcement by local governments or other third parties	2007	
Consistent Code administration processes	2007	

A Modern Building Regulatory System: Discussion Paper

Key Components of a Modern, Effective Building Regulatory System	Previously Recommended in:	Included in These Proposals
Provincial role in the building regulatory system:		
Provincial leadership and coordination of the safety system	1997	✓
Qualifications and licensing/registration/certification:		
Qualification requirements for all system participants	1996, 1997	Audits will identify what changes may be needed to ensure participant competency
Minimum mandatory education for multi-family residential design and construction, including testing architects, engineers, and registered builders on the basics of building science and the Building Code	1998	
Development, implementation and enforcement of trade qualification requirements	1998	
Requirement for designers and builders to demonstrate Code knowledge	2004	
Skills certification for building officials	2004	✓
Education and experience requirements for new residential builders of four units or less	2008	✓
Continuing professional development (CPD) to requirements for builder license renewals	2008	✓