Modernizing Building Approvals in Ontario: Catching Up with Advanced Jurisdictions

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Ryerson University
Centre for Urban Research & Land Development
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RESIDENTIAL CONSTRUCTION COUNCIL OF ONTARIO

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Modernizing the Building Approval Process in Ontario to Achieve Greater Efficiency and Innovation

Building approvals in Ontario are much too slow

The World Bank currently ranks Canada's (Toronto's) building permit process at 57th in the world, with site plan approval delays being a major factor in this low ranking. Ontario's building approval process is unproductive and inhibits innovation. In recent years, regulatory delays have increased. Several earlier reports which are identified in this study have recommended improvements, but no real action has been taken.

Building construction is complex, involving multiple stakeholders and many regulatory agencies. It is subject to an increasingly wide range of public policy objectives, and Ontario has yet to substantially modernize its building approval process.

This report addresses the routine aspects of building approvals

This joint RESCON-Ryerson report and its recommendations focus on the more technical aspects of the building approval process, excluding re-zoning, which is unpredictable and is subject to long public consultations. The technical aspects of the building approval process include obtaining approval from applicable law agencies such as Planning (more specifically site plan control and/or plan of subdivision) as well as other agencies (such as conservation authorities, Ministry of Transportation and Ministry of Environment) up to the issuance of building and occupancy permits. Because technical reviews do not require public consultation, they should be done more quickly and predictably as they are in other Organisation for Economic Co-operation and Development (OECD) countries.

The Building Code requires that a decision on whether to issue a building permit for a large building must be made within 20 working days although this is not always achieved. Under the Planning Act, a municipality must make a decision regarding site plan control approval within 30

days. However, this timeline is virtually never achieved, with site plan control approvals invariably taking much longer.

Impacts of unnecessary approval delays

The World Bank rankings are based on a relatively simple and benign building type – a warehouse in an area which is zoned for warehouses. Even for such a simple building class, site plan control approvals in Toronto take 6 months. Based on this report's research, average approval times for site plan control and other applicable law in the case of more complex buildings, such as condominiums, is 28 months.

These unnecessary delays in approvals have significant impacts. A Fraser Institute report that examined building regulatory regimes in different Canadian communities found that every 6-month delay in approvals reduces growth in new housing supply by 3.7%. This is not just a delay in approvals but it also results in a reduction of new supply. Additional reductions in housing supply growth occur when there is considerable uncertainty regarding approval timeframes which is another feature of Ontario's building approval process.

Delayed approvals also have a significant financial impact on municipalities. A two-year delay in approvals can result in millions of dollars in delayed property tax revenues for a municipality.

Unnecessary delays in the building approvals process also inhibit building innovation. High performance, low cost technology is essential for meeting government policy objectives, reducing construction costs, and improving building quality, while creating manufacturing and export opportunities. For example, Ontario, which is well behind other jurisdictions in tall timber construction, now imports certain pre-engineered timber products such as CLT from jurisdictions such as Quebec, British Columbia and Europe.

Recommended improvements for speeding up Ontario's building approval process

The recommendations in this report are based on: a literature review; a survey of builders; focus group meetings with builders, building officials and planners; and a review of international best

practices. This report recommends three transformational improvements: streamlining and speeding up site plan and other applicable law approvals; placing greater reliance on qualified professional consultants; and moving to electronic permitting for faster approvals and more innovation.

Streamlining and speeding up site plan and other applicable law approvals

Concerns about site plan control and other applicable law provisions revolve around a lack of clarity on standards, expectations and process. Builders want to comply with reasonable requirements, and their main request is to have clear upfront information about the requirements, the process, and the decision-making criteria. Other concerns which builders have about the current process include the long timeframes, conflicts between different agency requirements, and the absence of municipal coordinators who understand the overall process and can help resolve conflicts.

This report recommends the implementation of more realistic timeframes which are calibrated according to project scope and impact on the community; measures to enhance transparency through clear guidelines and process requirements; substantive pre-consultation; deployment of a municipal coordinator to assist the developer with interagency conflict resolution; and requiring agencies to report on the actual time required to complete reviews.

Placing greater reliance on professionals

The primary role of the municipal building departments is to manage the process, confirm compliance with applicable laws, verify that building plans comply with the Building Code, undertake site inspections as necessary and issue occupancy permits.

Highly qualified professional building designers (architects and engineers) also have a responsibility to comply with the Building Code, undertake general reviews during construction and coordinate designs which have been prepared by structural engineers, fire code specialists, mechanical engineers and others. British Columbia introduced the “Letters of Assurance” program in the 1990s. This program was intended to provide assurance to the building department that a design coordinator has been engaged, and that the plans and site reviews

addressed key Building Code elements. The program has worked well by reducing timeframes and facilitating innovation. This report proposes that an Ontario version of a "Letters of Assurance" program, with peer review, be introduced. Private sector peer review, or third party peer review by independent experts, would provide municipal building officials with a high level of assurance that a building complies with the Building Code. This would reduce unnecessary duplication from municipal staff, so allowing for faster building approvals and encourage innovation.

Moving to e-permitting

Ontario municipalities have fallen behind many jurisdictions that have implemented comprehensive Building Information Modelling (BIM) based e-permitting systems. Ontario is missing a common platform for interoperability among agencies which would allow files to be easily transferred between municipal and provincial agencies and processed.

According to the report "Shaping the Future of Construction" by the World Economic Forum, BIM is the most likely and impactful new technology to affect the construction sector. BIM can create a digital representation of a project which covers building design, procurement, and construction management. Some Ontario building designers who use BIM currently need to print their plans on paper so that they can be reviewed by municipal building officials.

Singapore's CORENET e-permitting system, which became fully operational in 2004, provides a common BIM platform for all agencies. This allows electronic document reviews, circulation and tracking. Professionals who use the system have experienced time savings of 65%, a reduction in manpower of 44%, printing cost savings off 72% and reduction of hardcopy storage by 54%. Regulatory agencies experienced significant savings of time and resources.

Implementing these improvements: A two-phase process

This report recommends a concurrent two-track implementation process. Phase 1 involves engaging some municipalities in pilot projects which would be overseen by an implementation steering committee composed of representatives from industry (builders, professional designers), building officials and the Province. Phase 2 involves working with the Province and professional

associations to develop standards, guidelines and regulatory changes which could support province-wide implementation of these improvements.

The goal is to put Ontario in the top 10

Efficiency and compliance in the building approval process depends on reducing excessive time-consuming and costly back-and-forth engagement with regulators.

The improvements which this report recommends include more transparency, more reliance on building professionals; accelerated use of advanced e-permitting technology. Together, these improvements would lead to increased productivity and building innovation. Moreover, a faster building approvals process would contribute to lower building development costs, increased government revenues, and more new residential supply. Increased supply can help reduce rising housing prices in Ontario, thereby making the province more attractive to job-creating investors.

List of Acronyms

BCA	Building and Construction Authority
BILD	Building Industry and Land Development
BIM	Building Information Modelling
CAIT	Climate Analysis Indicator Tool
CORENET	Construction and Real Estate Network
CP	Certified Professional
CUR	Centre for Urban Research and Land Development
EABO	Engineers Architects and Building Officials
GATI	Guaranteed Application Timeline Initiative
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GTA	Greater Toronto Area
MMAH	Ministry of Municipal Affairs and Housing
OAA	Ontario Association of Architects
OBOA	Ontario Building Officials Association
OHBA	Ontario Home Builders' Association
QP	Qualified Persons
REALpac	Real Property Association of Canada
RESCON	Residential Construction Council of Ontario
URA	Urban Redevelopment Authority

1.0 Research Scope

Those who are in the development and construction industry generally believe that the current regulatory framework that surrounds building approvals in Ontario is excessively costly, is unnecessarily inflexible, and creates barriers to achieving the government's policy objectives.

Research which the Centre for Urban Research and Land Development (CUR) conducted recently has identified and confirmed the fact that excessive land-use regulations and the related approvals process have contributed significantly to increases in housing prices and the problem of affordable housing. In the context of this report, the term "regulation" covers a subset of the housing development approval and permit process.

CUR has reviewed the literature on the impacts of regulation and housing prices. This includes reports which have been undertaken in the US by Glaser and others, as well in the UK and Europe by Cheshire.[1] In addition to having impacts on housing prices, the lack of affordable housing has been shown to affect local Gross Domestic Product (GDP) in cities and to increase income disparity in cities in which high housing prices exist.[2]

Addressing inefficiencies and delays in the building permit approvals process is one of the approaches that can be used to help address the issues of an excessively costly and inflexible regulatory framework and the barriers that it creates.

This research study focuses on the building (permit) approval system. More specifically, it looks at the administrative and technical application, and the review and approval processes which must be completed before a new building can be built in Ontario. This includes building permits, planning approvals (such as site plan control), and other applicable law approvals[3] which include heritage preservation and conservation authority. Development applications which involve substantial changes to a municipal official plan, re-zoning of land, and building inspections to

[1]Amborski, *Affordable Housing and the Land Supply Issue in Greater Toronto*, Centre for Urban Research and Land Development, Ryerson University, 2016.
[2] Hsich and Moretti. *Why Do Cities Matter? Local Growth and Aggregate Growth,* National Bureau of Economic Research No.w21154., 2015.
Ganong, Shoag. *Why Has Regional Income Convergence Declined?* Hutchins Center Working Paper #21 at Brookings Institution, Washington, D.C., 2016.
[3] Ontario Building Code. *Section 1.4.1.3. Definition of Applicable Law*. Queen's Printer of Ontario, 2012.

occupancy permits are not within the scope of this study. Appendix A provides a brief overview of the building permit approval process.

2.0 Research Methodology

Several research methods were used to find new and innovative ways to modernize the building approval system. This section describes the various methods which were used and the ways in which the research and analysis helped shape this final report.

2.1 Literature Review and Policy Analysis

The first component undertaken was a review of the relevant literature. The purpose of the literature review was to understand what studies have been conducted, to review the subsequent reports and their findings, and to develop an understanding of the current regulatory framework. The policy analysis was constructed as a comprehensive review of the complete relevant policy framework from the provincial (or state) to the municipal level. The purpose of the policy analysis was to understand the process of obtaining building approvals and eventually identify key issues and problems in this process.

Both the findings from the literature review and the policy analysis are embedded in various sections of the report which highlight current practices and inefficiencies that arise due to the current administration of the building approval process.

2.2 Electronic Survey

Another key component of this research was an electronic survey which was developed jointly by RESCON and CUR and was then sent to RESCON members. An initial letter was emailed to RESCON members notifying them of this study and requesting their participation, and this was followed by a letter with the actual survey. The survey was targeted towards those individuals who have applied for building permits, the majority of whom are RESCON members. The purpose of the survey was to gain insight about the issues and challenges which applicants face while complying with the current regulatory environment that surrounds the building code and the building permit system. The survey questions are provided in Appendix B.

In response to the survey, RESCON received 19 responses which included 57 experiences regarding building permit applications. The data which were obtained from the survey are not considered to be statistically significant, but they provide insight into a number of elements which relate to the building approval process.

2.3 Focus Group Discussions and Stakeholder Engagement

Another component of the research methodology was a focus group discussion. The objective of this discussion was to gain further insight about key issues or points that were not covered in the survey. Two focus group sessions were held. The first session involved developers and builders who submit development applications. The second session was with chief building officials to gain insight into some of the challenges and opportunities that exist from an alternate perspective.

In addition to the focus group, stakeholder engagement sessions were also held at RESCON's offices between the months of November and December of 2016. These stakeholders were individuals who had extensive experience with the building application process, the group included planners from various municipalities, conservation authorities, and various associations such as the Ontario Building Official Association (OBOA) and the Ontario Home Builders' Association (OHBA).

2.4 Case Studies

In consultation with RESCON, CUR examined several jurisdictions that underwent building permit reform and evaluated how successful they have been since the change. These specific case studies helped to inform our final recommendations.

3.0 The Ideal State

Ontario's approval and permitting system was established to ensure that buildings meet public needs, satisfy local planning standards, and comply with health, safety and other objectives which are outlined in the *Building Code* and other applicable law. While maintaining these objectives, the approval process must be determinate, predictable and optimized for consistency and efficiency. The process must be flexible and open enough to enable the industry to be innovative and competitive, and to be cost effective in meeting the necessary standards in a desired built form. Regulators should focus on setting and communicating common and transparent standards, while allowing different strategies to achieve them.

3.1 How Does Ontario Compare?

The current Ontario building approval system includes many approvals which need to be obtained well before any construction can occur. Depending on where a development is located, there may be additional policies, such as the *Ontario Heritage Act*, local conservation policies, and environmental protection policies that require approval before an application is circulated back to the municipal building department for final approval. Appendix A provides a general overview of the process with which an applicant must comply when applying for a building permit. However, it does not include all of the applicable government agencies that may need to approve plans prior to their being submitted to the building department.

While these policies and regulations are meant to work together to help promote public safety and welfare, at times they seem to work in silos, creating confusion through conflicting comments in building plans. This ultimately creates delays in the overall building approval process. Although Ontario's building approval process ensures that public safety needs are met, reports which have been produced by the World Bank, Real Property Association of Canada (REALpac) and Ontario Association of Architects (OAA) conclude that Ontario's building approval process does not allow for flexibility and that it is not open enough to enable the industry to achieve different innovative built-form solutions.

Although the current state of Ontario's building approval process allows development to occur, it is still far from its ideal state of supporting an evolving government policy, enabling innovation, increasing cost efficiency, reducing procedural delays, and unlocking the full potential of the design and construction industry.

Research from the Fraser Institute showed that regulations which surround residential development in Canada restrict the housing supply and thereby encourages rising housing prices. This study found that, in general, a 6 month increase in approval timelines would reduce housing growth in Canada by 3.7%. They also use regression models to estimate how growth would have been during the mid- to late-2000s if these regulations were more flexible and less costly in three major cities in Canada – Toronto, Vancouver and Calgary. This research showed that areas such as Oakville and King Township, which are viewed as heavily regulated municipalities, would have seen a substantial population growth if their land-use regulations were less stringent.[4]

The World Bank has done extensive work ranking economies around the globe based upon a variety of factors, one of which is the ease of dealing with construction (building) permits. They have provided detailed summaries of the procedure, the time, and the costs to build a warehouse, which is a standard building form, in each country. The process includes obtaining the necessary licenses and permits, completing required notifications and inspections, as well as obtaining utility connections. In terms of dealing with construction permits, in 2016, Canada (more specifically Toronto as their case example) ranked 57th out of 190 different nations.[5] This was a drop from the previous year's World Bank rankings for Toronto. Without changes and improvements to the processes in Toronto, we cannot expect to see any improvement for Canada (or Toronto) in these global rankings, as we anticipate other jurisdictions globally will be modernizing and improving their processes.

In 2012, REALpac released a report that looked at a survey of the development process in 10 major cities across Canada to understand the efficiencies, effectiveness, and any improvements that could be made in their systems. This report placed a particular emphasis on planning tools such as application fees and timelines, and sustainable development standards. Looking at all types of development applications (such as site plan control and minor variances), these

[4] Fraser Institute: *The Impact of Land-Use Regulation on Housing Supply in Canada*, 2016.
[5] The World Bank: *Doing Business – Dealing with Construction Permits*, 2013.

processes took longer in the Greater Toronto Area (GTA) (Toronto and Mississauga) than in the rest of the country. Cities like Vancouver had average processing times of 4-6 months for zoning by-law amendments, whereas Toronto averaged upwards of 12+ months. [6] With the exception of condominium planning in Montreal where the process takes over 12 months, the GTA has the longest application processing times in the country.

The REALpac report suggested that municipalities in the GTA adopt targets for the length of time that it should take to process a development application. Nearly half of the other major cities in Canada (Calgary, Regina, Ottawa and Halifax) already have a timeframe mechanism in place that allows a level of predictability and accountability for developers.

For example, the City of Ottawa has created the Guaranteed Application Timeline Initiative (GATI)[7]. GATI's objective is to provide developers with a decision on certain classes of development applications within a given timeframe. If that timeframe is not met then the applicant's next application of that type would be free of charge. Five different development applications fall into GATI: lifting part lot control, listing 30cm reserve, standard plan of condominium, lifting holding by-law (except when tied to site plan approval), and demolition control.

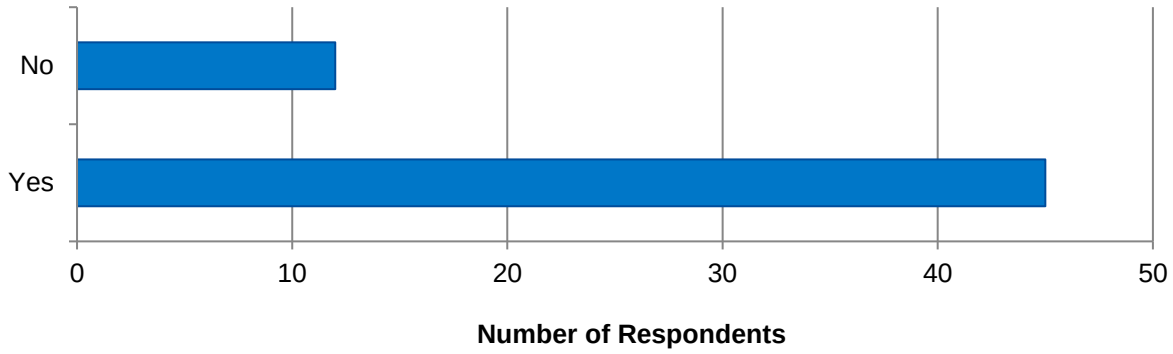
If the City of Ottawa does not inform the developer of the decision concerning their application within their mandated timeframes, then a letter is sent informing the developer that their next application of the same type will be free of charge. While there are no specified timelines for other types of development projects, the ones that are listed in GATI do provide some guidance and predictability for developers about when they should expect a response back from the City.

One of the questions which was in our survey was whether applicants felt that their projects were delayed due to the length of any of the required approval processes. Out of the 57 projects which were identified there was an overwhelming number of respondents who felt that their projects were unnecessarily delayed.

[6] Realpac 2012 Canada-Wide Development Process Survey Report, 2012.
[7] City of Ottawa: Guaranteed Application Timeline Initiative (GATI).

Figure 1:
Unecessary Delays in Approval Process

Question: Do you feel these projects were unnecessarily delayed due to the length of any of the required approval processes?



This section has shown that Ontario's building approval system is not only falling behind other cities in the world, but also behind other cities within Canada. With no change, Ontario will continue to lag behind other developing cities and areas of Canada.

4.0 Issues Identified

There is no doubt that the *Building Code* and *Building Code Act* are important as they safeguard the general public and help to protect the natural and built environment. However, as outlined in the previous section, applicants must comply with existing legislation as part of the building approval process before a building permit can be issued. With this prescriptive and often long process, how can innovation in the development process occur?

To help inform our understanding of Ontario's rigorous development application process and inform our recommendations, the sections below are divided into themes that reflect the challenges of the building approval process.

4.1 Costly and Time Consuming Delays

Delays in any part of the planning and construction phases have negative impacts on the overall development process. The challenges with the building approval timelines which have been highlighted in this section not only frustrate builders, but can also increase construction costs.

For example, official municipal plans and municipal zoning by-laws dictate what development is allowed and where it is permitted to be built. However, if a proposed development is not compliant with the existing official plan and zoning, there may be a lengthy process to get an official plan amendment, and/or zoning amendment. Challenges also surround site plan control approval[8], subdivision control, other applicable law, and the delays that they cause in obtaining approval from municipal planning staff. Depending on the type and size of a project, obtaining municipal planning approval can take upwards of 2 years, which can increase overall construction costs.

We had asked respondents about the overall time that it took their application to go through each portion of the building approvals process i.e. Planning, Other Applicable Law, and Building Department (See Questions 4, 8, 10 in Appendix C).

[8] Planning Act Section 41.1 Site Plan Control Area, 1990.

Figure 2:
Average Timeframe for Building Approval Process by Housing Type

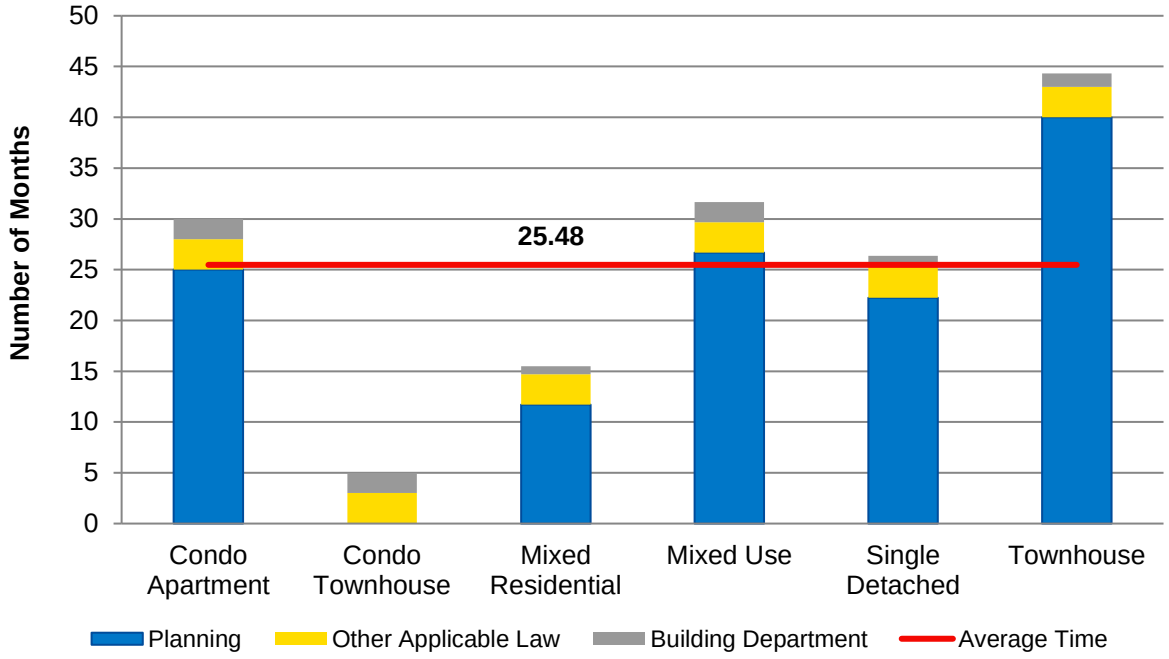
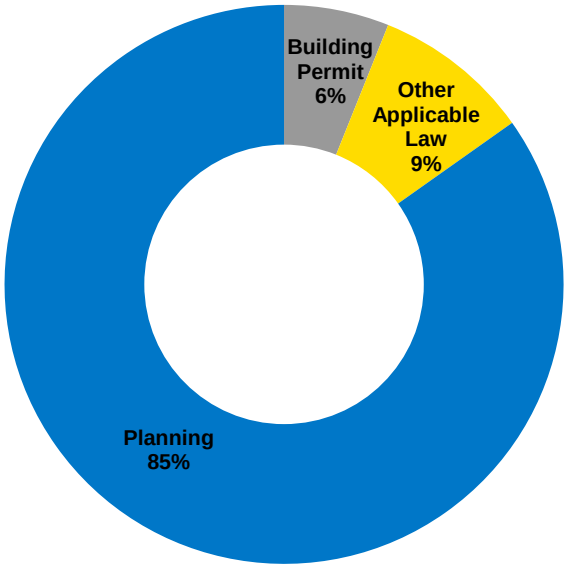


Figure 2 highlights the average time that it would take for applications involving different residential housing types to go through the building approvals process. "Planning" refers to the time that it took an application to obtain approval for either Site Plan Control or Plan of Subdivision, excluding applications that do not comply with local municipal zoning by-laws. "Other Applicable Law" relates to other applicable law agencies such as Conservation Authority, Ministry of Environment and Ministry of Transportation. Most respondents indicated that these approvals take longer than 3 months and that these timeframes did not vary by housing type. "Building Department" refers to the time that it takes an application to obtain a building permit. Timelines for building permit approval were dependent on the type of housing type, as some applications would take less than 1 month, while others would take up to 2 months.

Based upon our survey, the applicants took on average 25.5 months for their residential development to go through the entire building approval system. Figure 2 not only shows that townhouse development applications took longer than any other type of residential development application, but it also highlights the fact that planning approvals, no matter the type of housing application, go beyond the 30 days that the *Planning Act* outlines, and takes up a large proportion of the building approval timeline.

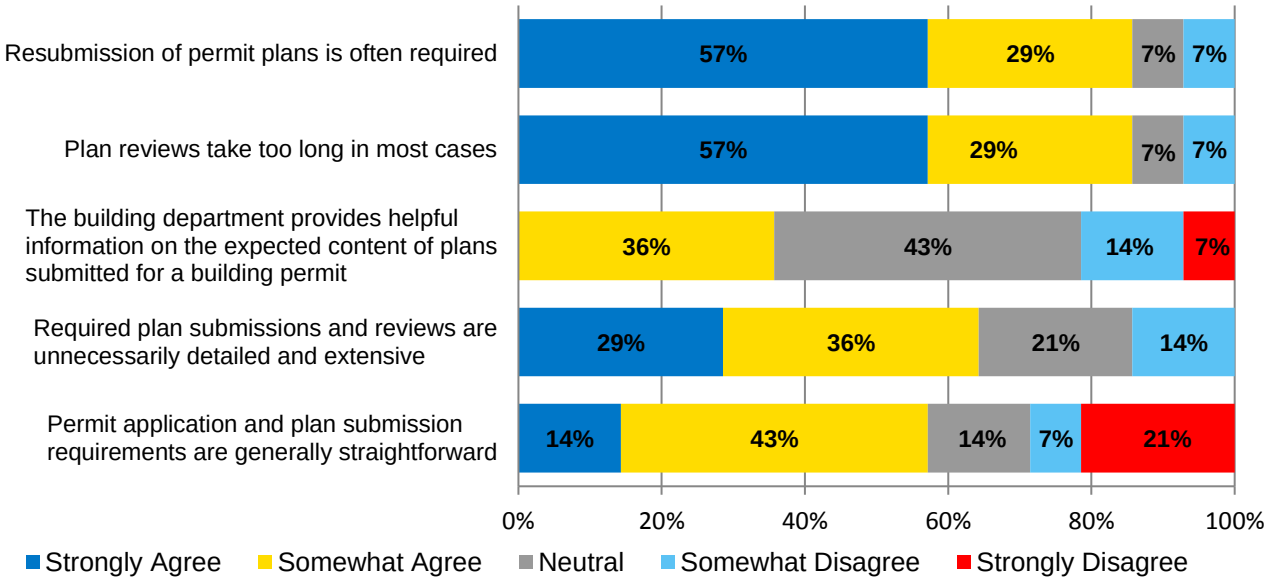
Figure 3:
Average Development Timelines



Based upon our survey results, the average residential project takes 25.5 months to go through the building approval process. We found that nearly 85% of the total applicant's time (or 21 months) is spent in planning departments, 9% (or 3 months) of the total building approvals timeline is spent going through other applicable law such as local Conservation Authorities and the remainder of the time is spent at municipal building departments trying to get a building permit (see Figure 3). For an applicant applying to construct a new residential home, three out of the four respondents said they would submit their building permit application after they had obtained approval from planning (site plan control approval or plan of subdivision) and from other agencies such as local Conservation Authority since it takes a vast majority of the process (see Question 9 in Appendix C).

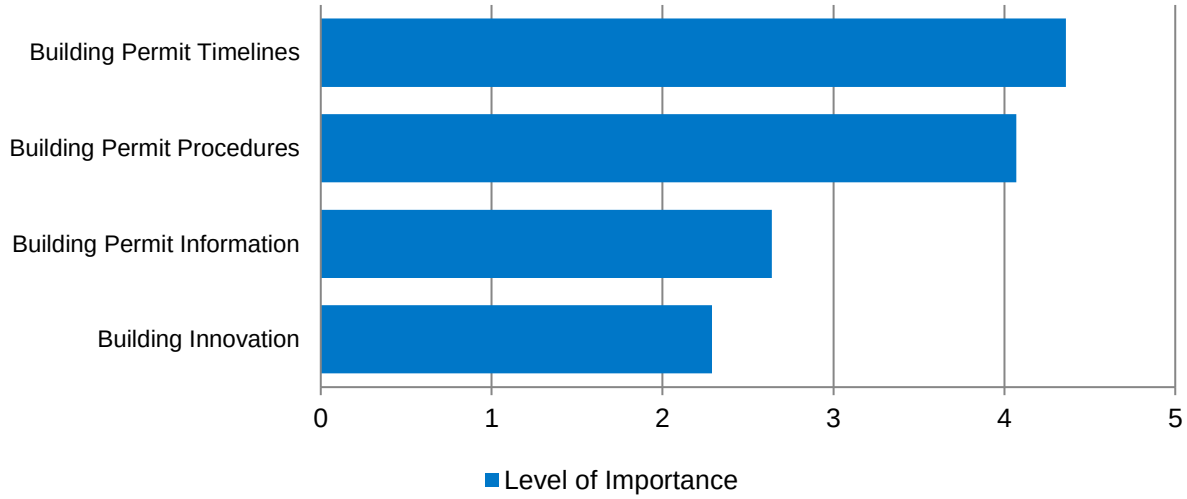
We also presented a series of statements regarding the developers' or builders' attitudes towards building permit plan review (see Figure 4). The results showed interesting patterns. First, the majority of the applicants agreed that permit applications and plan submissions were generally straightforward. However, it was also revealed that resubmission of plans were generally required. This illustrates the fact that perhaps the requirements are not as straightforward and clear as an applicant may think if resubmission is frequent.

Figure 4:
Attitudes towards Building Approval Process



This survey was also divided into major themes including building permit timelines, building permit procedures, building permit information, and building innovation. In this survey we asked respondents, what area in the building approval process needed the most improvement based on these four themes. It is not surprising to find that most applicants wanted to see improvements in the building permit timelines and procedures (Figure 5). Ranked out of 5 (with 5 being the most important), both building permit timelines and procedures were ranked higher than the other categories. Surprisingly, building innovation was ranked lower than the other categories. This shows that, while building innovation is still significant, other areas need greater attention and focus.

Figure 5:
Improvement Areas by Level of Importance



4.2 Process Barriers to Innovation

With other industries embracing innovation such as the technological[9] and communications industry[10], construction is the one industry that is currently lagging behind. There is little information on this subject, and the few articles suggest that the main barriers to innovation in construction are typically the lack of incentives for businesses to actually be innovative[11], and/or the prescriptive regulations that are administered[12]. According to a World Economic Forum Study, construction productivity has actually declined in recent decades.[13]

Technical regulations create barriers and force developers to stick to their conservative norms because the regulations do not allow innovation to occur. Alternatively, if they do allow innovation, the time that it takes to obtain the approvals far exceeds what it would take to stick with the status quo. These impediments create a laggard industry as scholars have described it[14].

[9] Advisory Council on Economic Growth. *Unlocking Innovation to Drive Scale and Growth,* 2017.
[10] Business Insider. *Most Innovative Industries,* 2015.
[11] Koebel et al. *The Diffusion of Innovation in the Residential Building Industry*. Virginia Centre for Housing, 2003. Kulatunga et al. *Construction Innovation: A Literature Review on Current Research*. (2006).
[12] Shani et al. *Evaluation of Tall Buildings Construction Permitting Process in Ontario.* Leadership in Sustainable Infrastructure, Annual Conference – Vancouver – May 31 - June 3, 2017.
[13] World Economic Forum. *Shaping the Future of Construction Inspiring innovators redefine the industry,* March 1, 2017.
[14] Tatum, C.B. *Process of Innovation in Construction Firms.* Journal of Construction Engineering and Management, 1987.

Building innovation is essential to the construction industry. Academics have argued that innovation creates an on-going competitive advantage for firms that embrace and adopt it (Tatum and Meacham, 1987). There is no clear documented path that shows an increase in building innovation and competitive advantage. Rather the benefits are indirect or may be slow to appear.[15] This means that a firm which adopts an innovation may initially incur increased costs, but in the long run they may improve the style and attractiveness of a home through the materials used, cost-savings in the materials used, and improve their reputation for construction of high quality durable homes, which is attractive to a future buyer.

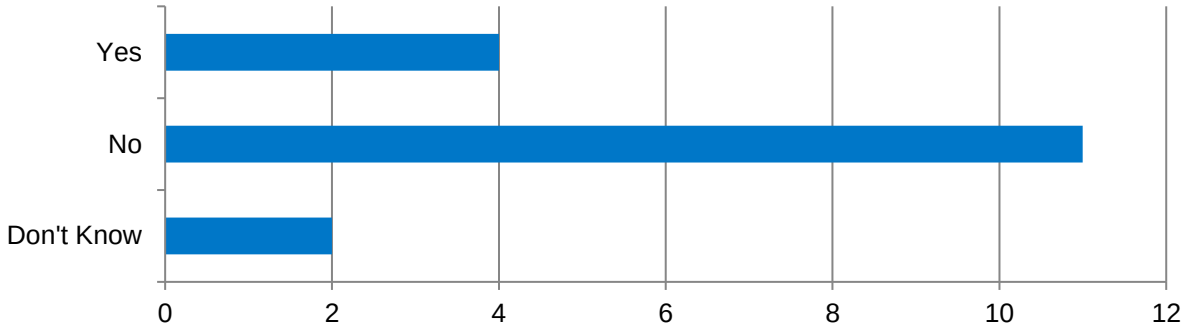
This concept of a laggard, or slow to innovate, industry can be found here in Ontario. Until recently, Ontario builders could only construct a maximum 4-storey wood framed building, but the building code has been changed to allow up to 6 storeys. While this might be considered an achievement, elsewhere in Canada, as in British Columbia and Quebec, wood frame buildings can be as tall as 18 storeys (University of British Columbia's new student residence).[16] The construction of wood frame buildings shows that wood products are just as good and reliable as traditional materials. However, one difference is that wood allows for efficient assembly, which cuts down on construction times. Also, wood is a sustainable and versatile building material. Rather than emitting carbon dioxide as other construction materials do, wood materials store it. Ontario has been slow to allow taller wood structures. These limitations in the regulatory system reinforce a developer's decision to continue to use the same material and maintain the status quo. The result of limited flexibility is to create barriers for the government in achieving its overall goals.

The survey also asked for respondents' opinions related to building innovation. We asked respondents whether the building approval process readily enables applicants to incorporate innovative design and construction elements in their development. Almost two-thirds of the respondents said no (see Figure 6).

[15] Rogers Everett M. *Diffusions of Innovations.* New York, 2005.
[16] University of British Columbia. *Structure of UBC's tall wood building now complete.* UBC News, September 2016.

Figure 6:
Incorporation of Innovative Design

Question: Does the building code/building permit process readily enable you to incorporate innovative design and construction elements into your developments?



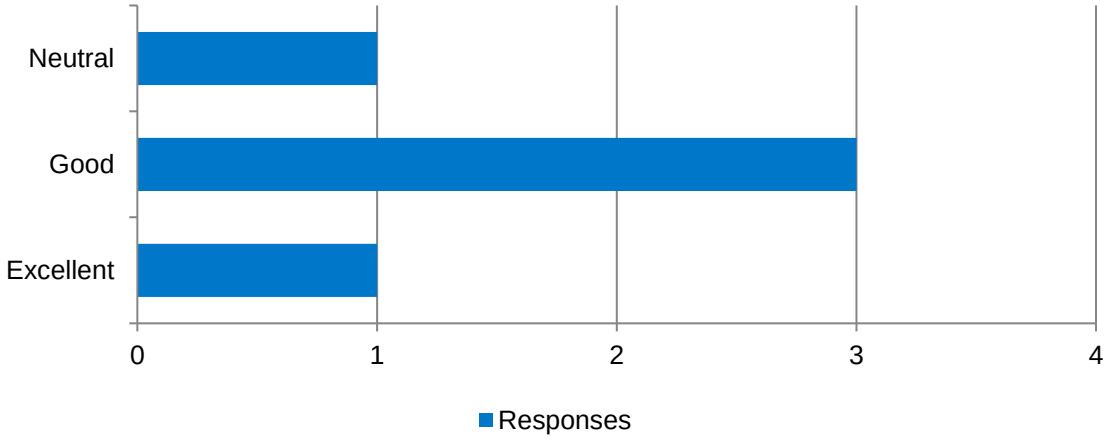
The same respondents who felt that the building code and building regulatory system did not allow for innovative construction also did not file applications for alternative solutions.[17] They may have thought that the application would have been rejected or that the approval process would have been far too uncertain or lengthy.

This was further echoed in focus groups when the chief building officials indicated that they empathize with applicants who were seeking approval for alternative solutions. Almost all of those respondents who found that the current building application process enabled them to incorporate innovative design had applied for an alternative solution provision. We had further asked these developers to explain their experience, and they had a positive experience with the municipality and the municipal authorities were receptive to their ideas (See Figure 7).

[17] Ontario Building Code. *Division C, Part 2 – Alternative Solutions,* 2012.

Figure 7:
Responses to Alternative Solutions

Question: What was your overall experience with the alternative solutions process?



4.3 Building Approval System is out of Date

Ontario's building approval system has remained largely the same albeit with a few amendments which have been made over the decades.[18] This out-of-date system often causes delays in the building approval timeline, which ultimately results in increased construction costs. Many developers and builders alike believe that the time it takes to submit all of the required paperwork and receive the applicable approvals, and the building permit itself, is often longer than the actual physical construction of the project itself.[19,20]

The number of requirements and approvals which are required prior to construction, and the associated timeframes, can add to the overall construction costs.

Complex and expanding regulations and regulatory requirements can also create barriers to entry, and they can reduce competition by favouring those firms that have become familiar with the complex regulatory requirements.

[18] Mascarin & Levitt. *Annotated Ontario Building Code Act.* Toronto, Ontario, 2015.
Government of Ontario. *Report of the Committee on Uniform Building Standards for Ontario*. Ontario, 1969.
[19] Peer, S. *Streamlining the Building Permit Process*. Journal of Management in Engineering, 1986.
[20] Listokin & Hattis. *Building Codes and Housing.* Cityscape: A Journal of Policy Development and Research, 2005.

For example, multiple regulations for construction can increase the learning curve for industry professionals as they must familiarize themselves with the building regulations in the area. Listokin and Hattis (2005) describe these as skill inadequacies and claim that this learning curve may limit competition among developers and other professionals in the industry and increase overall construction costs. This is why transparency regarding regulatory requirements and procedures is essential to reduce resubmissions and delays. The simplification of the regulatory process is also important to reduce timeframes.

The *Building Code* continues to become more complex as ever more policy objectives are added to it. This includes such new requirements as accessibility, building resilience, and features to cope with the effects of climate change. This increased complexity will continue to add to delays unless the building regulatory system can be properly modernized.

4.4 Lack of Transparency and Predictability

An open culture of communication and accessibility of information goes a long way not only for an organization's morale, but it also builds confidence in the process. It is not specific to any particular industry as this culture benefits everyone. Ontario municipalities and provincial agencies involved in the building regulatory process have been far less transparent than they should be.

Legislation such as the *Planning Act* provides an excellent example of this lack of transparency. The act specifically states that the timeframe which is allowed for making a decision about a site plan application is 30 days (Section 41[12]). However, this timeframe is almost never met by municipalities, and site plan applications can take as much as 2 years for approval. This presents a serious concern as site plan control is meant to be a technical review that addresses specific design issues such as building layout, shadow massing, and parking. However, municipalities have taken Section 41 of the *Planning Act* and expanded on certain elements in their official plan and/or local zoning by-laws. This expansion of the scope of site plan control – a form of municipal over-reach – along with inefficiencies and a lack of transparency in the municipal administration of site plan control, have resulted in very substantial delays in the site plan approval process. In addition, various applicable law agencies that are typically part of the site

plan control process – such as conservation authority approvals – also have processes which are not as transparent or efficient as they should be.

The *Building Code* also specified timelines in place but did not accurately reflect what municipalities were doing. The 2005 update of the *Building Code* introduced timeframe requirements for municipal review of complete building permit applications. During one of the focus groups, respondents mentioned that introducing the timeframe requirements was a positive change because it not only made chief building officers more accountable, but it also allowed applicants to have a better idea of how long it would take to obtain a building permit.

5.0 Financial and Other Related Costs

Delays have serious impacts, not only for developers, but also for municipalities. The sections below attempt to estimate the costs of delays for each component of the development process.

5.1 Site Plan Control Application

Site plan control and approval is a planning tool that is made available to municipalities under Section 41 of the *Planning Act*. It is a tool through which municipalities can provide regulatory control for a development on a site specific basis, In order to use site plan control, a municipality's official plan must specify that they intend to use this tool to help implement the plan. With this tool a municipality has the authority to approve development that is in accordance with the physical planning, built form, and operational objectives that are outlined in the municipality's official plan. A municipality must pass a by-law designating which areas are subject to site plan control, and this allows the implementation of site plan control. In some cases, municipalities may designate certain limited urban areas, such as areas along major arterial roads, or in other cases municipalities may designate the entire area within the city as a site plan control area.

Site plan control and approval builds upon a municipal zoning by-law, and allows a municipality the added ability to control the design and development of a site. This includes the location, design and shape of the site, as well as the layout of parking, service areas, public-access areas, landscaping, paving materials, street furniture, and the architectural appearance of the building.

In the example of a new low-rise residential development, a site plan control application would be required only if the municipality has placed site plan control provisions on the property or a municipality believes that the plan of the subdivision[21] is not sufficient in and of itself and that further regulation is required.

There is a focus on site plan control because, as indicated in our survey, it is one of the main regulatory areas that slow down a building permit application. Figure 8, on the following page,

[21] Planning Act. Part 4, Section 50 – Subdivision of Land.

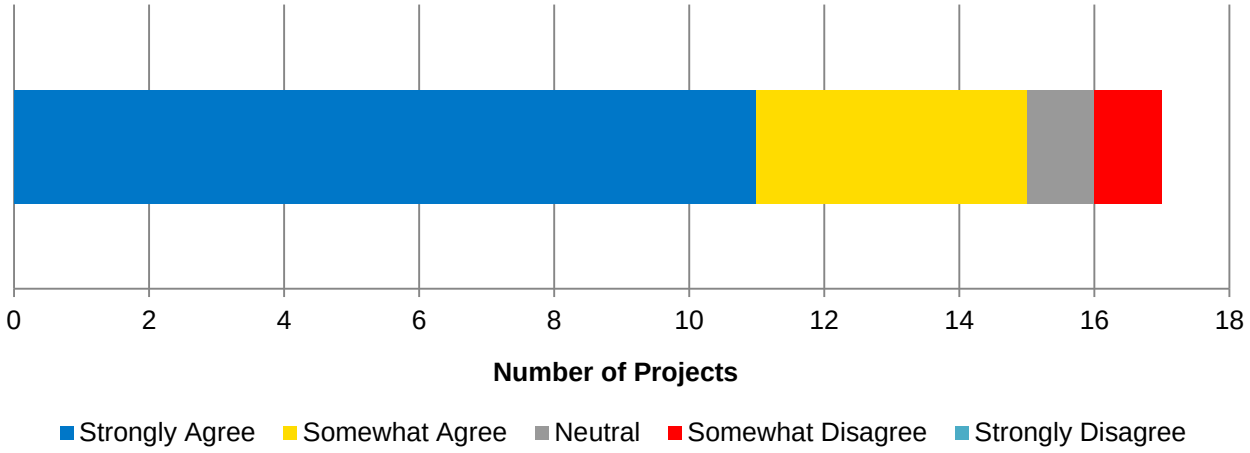
calculates and compares the costs, for three cities (Toronto, Vaughan and Windsor), that an applicant would need to pay if a site plan control application is required because the entire city is subject to site plan control.

Figure 8:
Site Plan Application Fees

	Toronto	Vaughan	Windsor
Site Plan Control Application Fee	$8,455.31	$13,660.00	$9,914.72
1st Resubmission	$5,113.59	$4,175.00	$5,280.82
2nd Resubmission	$5,113.59	$4,175.00	$5,280.82
Total Costs	$18,682.49	$22,010.00	$20,476.36
Costs per Unit	$2,335.31	$2,751.25	$2,559.55
Cost per Unit for each resubmission	$639.20	$521.88	$660.10

Our survey indicated that re-submissions of site plan control applications were prevalent (see graph below). Fifteen of the 17 respondents stated that they strongly agree or somewhat agree that re-submissions of plans are often required. The cost of resubmitting an application can quickly add up ranging from $521.88 per unit for each resubmission in municipalities like Vaughan to $660.10 in municipalities like Windsor.

Figure 9:
Statement: Resubmissions Are Often Required



5.2 Cost Impacts on Homeowners and Municipal Finances

This section looks at the cost of delays that would impact the future homeowners and a municipality where the development is undertaken.

5.2.1 Delayed supply of housing

The high, and continually increasing, prices in the current housing market in the GTA are barriers to entry itself, especially for first-time buyers. In recent years, the GTA has seen housing prices sky rocket to record breaking prices.[22] While the government has attempted to intervene and cool the housing market by putting new rules and regulations in place, these interventions have not been effective in cooling off the demand for new housing. Many planners and economists suggest that one of the ways to meet the demand of the GTA housing market is to increase the supply of housing.[23]

The Fraser Institute reported that Canadian municipalities with the least demanding land-use regulations were the fastest growing municipalities. In fact, they used multivariate analysis

[22] TREB Marketwatch. *Record Sales in 2016.*
[23] Amborski & Clayton, *The Need to Make Housing Affordability a Primary Goal in Regional Planning for the Greater Golden Horseshoe.* Centre for Urban Research and Land Development, November 3, 2016.

across major Canadian cities and found that increasing the average approval timeline by 6 months would decrease the supply of housing by 3.7%.[24] Furthermore, the study found that increasing the average approval timeline that would suggest long and uncertain project approval. This would be due to factors such as opposition from municipal council or community groups, and long public meetings which could offset any new housing supply in a neighbourhood. Interestingly enough, the study noted that higher construction costs and fees, or how frequently re-zoning is required, had less of an impact on the demand of new housing supply than increasing the overall application timeline. Results from this study show that an applicant would rather pay a higher fee and have an increase in housing supply than wait in uncertainty for a project approval and delay the housing supply.

5.2.2 Property tax revenues

Delays not only affect the applicants, but they affect the local municipality as well. For every month that a project is delayed a municipality loses property tax revenue that would have been generated from the completed development. Below are examples of various property tax rates in selected municipalities in the GTA, and the amount of tax revenue that is lost when approval and construction is delayed.[25]

[24] Fraser Institute. *Impact of Land Use Regulation on Housing Supply in Canada,* 2016.
[25] 2016 Property Tax Rate includes: city tax rate (both upper and lower tier, if applicable), education tax, and transit tax rate (Toronto).

Initially, a developer would pay a residential property tax rate which was set by their local municipality. This would be the pre-development tax revenue that a municipality would receive. Calculated as follows:

Pre Development Tax Revenues:

Toronto: [($812,345 acre of land/ 8 residential units) x (0.7056037% property tax)] x [1/12 months] = $58.22/ month

Post Development Tax Revenues:

(Post-Development Tax Revenues) – (Pre-Development Tax Revenues) = Municipal Tax

Toronto: [$900,000 home x (0.7056037% property tax)] x [1/12 months] = $515.98/ month

Revenue Loss per month per unit due to delays in approval and construction:

Toronto: Loss of $457.76 per month and per residential unit

The impact of approval delays is even more significant in the non-residential sector, where tax revenues generally exceed the costs associated with development. Residential development is not considered by municipal Chief Administrative Officers as a "profit centre" for the municipality. Often, non-residential property tax revenues from office and commercial buildings cross-subsidize residential development. The delays in ICI construction have an even greater impact on municipal tax revenues and the ability to support development.

5.2.3 Reduced development charges revenues

Delays in the building approval process reduce new housing and building supply as the Fraser Institute noted.

These delays in new supply reduce revenues from development charges which support incremental infrastructure costs which are associated with new development. If a municipality is assuming 20 new condominiums, office and commercial buildings in a particular area and timeframe, and only 10 are built during that timeframe, then the development charges may be

insufficient to support the water, sewer and other infrastructure which is necessary to support growth and may result in the municipality limiting future growth.

In this scenario, delays in approvals, which result in delayed infrastructure, result in reduced supply. This is one of the mechanisms whereby delays in the approval process reduce supply. However, there are other mechanisms as well.

5.2.4 Delays in innovation and domestic manufacturing activity

Delays in the building approval process also have impacts on the manufacturing industry. For example, provinces such as British Columbia and Quebec (where their permitting process is fast and innovation friendly) are able to attract high tech manufacturing like Cross Laminated Timber (CLT) to support tall timber buildings. As a result, these provinces are able to attract manufacturing and export these technologies rather than import them as Ontario does. If Ontario were to expedite the approval process and allow for more innovation, there would be no reason why CLT technologies could not be found here in Ontario.

6.0 Improvement Opportunities and Their Benefits

So far in this report we have outlined some of the pressing issues with the building approval process and what the costs are to the applicant, to the end user and to the municipality. However, there are potential solutions for each of these issues. We present recommendations for solutions below, under separate headings with each section describing the key elements that we are proposing. We also identify the immediate and long term benefits that could result from each solution, what some of the criticisms would be from others, and how to go about implementing each recommendation.

Many previous research efforts have assumed that reports and studies are sufficient to motivate government to improve Ontario's building approval system. However, this research-based approach has often not produced results. Therefore, we propose that our solution be implemented through a simultaneous two-phase approach. This would involve having key municipalities test and demonstrate major improvements to the building approval process through pilot projects, while, at the same time, the provincial government provide top down direction.

The recommendations that we have listed below follow this simultaneous two-phase approach. The first phase involves enlisting interested municipalities to establish pilot projects which would implement the three recommendations (listed in following sections) to achieve a substantive improvement in the building permit process. These pilot projects would cover three main areas: Site Plan Control improvements; design coordination; and electronic permitting.

6.1 Recommendation 1: Streamlining Applicable Law Approvals

One of the biggest challenges for applicants who submitted applications in the building approval process was not the time it took to obtain a building permit. Rather, it was getting the various approvals (under applicable law) which were required prior to submitting a building permit application. We recommend that a mechanism be set in place that allows an applicant to know, upfront, how long it would take for an applicable law agency – whether it be municipal planning departments or local conservation authorities – to review and process a complete application. Creating a more transparent and predictable timeframe would benefit not only the applicant, but would benefit everyone in the process. One respondent from our focus group said: "The building approval process is like a relay, you cannot expect the last person to do their job in half the time if others beforehand are taking forever…"

6.1.1 What does streamlining applicable law approvals entail?

We are proposing that approvals from applicable law agencies be managed more effectively and efficiently by informing applicants, prior to submitting their applications, how long the applicable law approval process would be and what would constitute a complete application.

All applicable government agencies would need to clearly document, perhaps on a web site, what constitutes a complete application. This information would need to be provided for each type of permit for which an applicant could apply. Having this information readily available and accessible would eliminate the need for an applicant to travel to an applicable law agency and wait to speak with a staff member. While applications for minor permits such as minor building alterations or additions would be relatively simple and straightforward, applications for major permits such as complex building projects (e.g. a hospital or large subdivision development) would require pre-application meetings at which the applicant would meet with all planners and staff from various agencies to establish what would constitute a complete application. At this meeting the applicable law agency would also clearly state the expected timeframe for consideration of such an application. A municipal coordinator (or multiple coordinators) could also be appointed to assist the developer in resolving conflicts among regulatory agencies.

Once an application has been submitted, a specified timeframe would be established for the applicable law agency to determine if the application is complete or not, as well as a timeframe for issuing approvals or providing reasons for a refusal to encourage better performance. At the end of each calendar year, all applicable law agencies would need to publish a report, perhaps in the form of a spreadsheet or matrix, which would summarize the types of applications which had been received, the number of applications of each type which had been received, and the average time that it took to process the applications. Comparisons of annual reports could show whether timeframes have improved or not. Also, showing the timeframes for permit applications would create transparency between the applicable law agency and the applicant, and would provide an indication of the length of time that is needed to review and evaluate permit applications.

For example, under the *Planning Act*, site plan control process is considered to be a technical review process which should take 30 days (Section 41 [12]). However, from reports such as Bousfield, RealPac, and even our survey, we found that the site plan control application process takes considerably longer than that. Feedback which we got from our survey indicated that the site plan process should not only be shorter, but also more transparent and predicable.

Under this recommendation, if a building project is subject to municipal site plan control, the municipality would need to explicitly state how long the review process would take, and specify what documents and/or drawings would be required to submit a complete application. Informing applicants from the start would minimize confusion for the applicants, since they would know what is expected of them, but it would also create more time for municipal staff as they could focus their efforts elsewhere. Planning staff would also need to publicly publish the number and types of site plan control applications which they receive and the average time it takes to approve them. This not only gives an applicant a general idea of how long their application would take, but it also creates a benchmark for municipal staff to improve their timeframes the following year.

For more information about this recommendation please see Appendix E.

6.1.2 What are the benefits?

The shift to a transparent and accountable timeframe not only benefits applicants, but also helps to change municipal culture and sets precedents for other applicable government agencies which are involved in the building approval process. This shift also aligns with other agencies in the province which are interested in reducing red tape and making the GTA more competitive and attractive to investors[26].

With any reform, many people are resistant to change. We predict that some municipalities may find that being upfront about timeframes with regards to site plan control to be challenging. This is because each project is different and placing a timeline on something as fluid as site plan control can be difficult. There may also be beliefs within municipalities that these changes may reduce the flexibility which they currently have. However, this is a false argument since being upfront in the process and design creates transparency and reduces staff requirements.

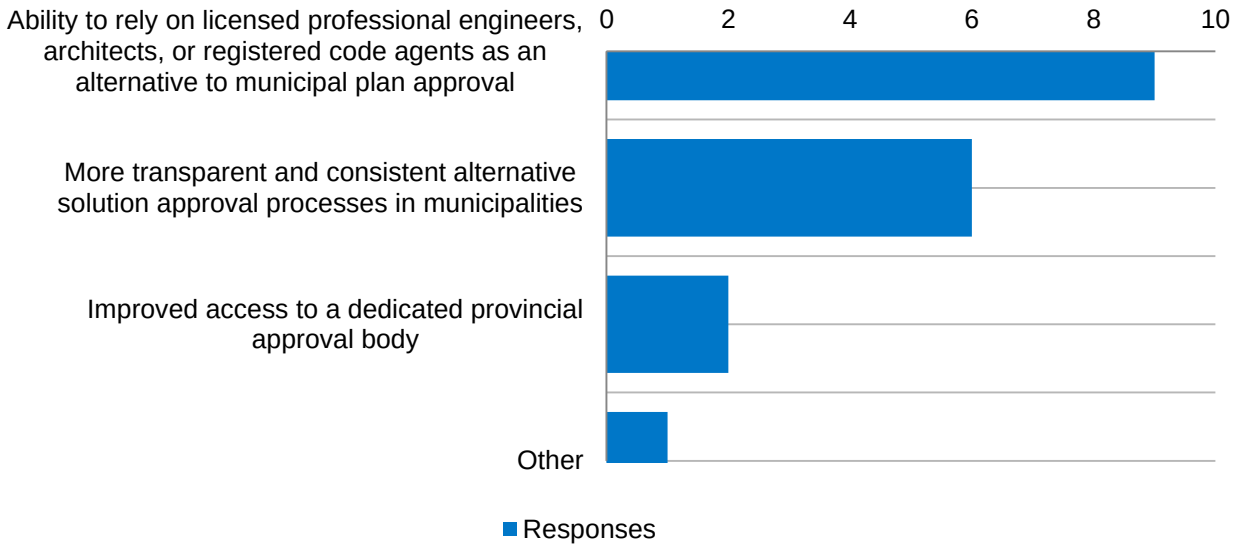
[26] Province of Ontario. *Help Ontario Cut Red Tape: Government Launches Crowd-sourced Program to Modernize Regulations.* Queen's Printer of Ontario, March 29,2016.

6.2 Recommendation 2: Placing greater reliance on design professionals - Fast Tracking Approvals via Peer Review and Coordination

In the survey we had asked the respondents "What changes or improvements in the building approval process would they think would be the most effective in enabling more innovative design and construction in Ontario?" A majority of the respondents indicated that the ability to rely on licensed professionals as an alternative to depending on municipal staff in the municipal plan approval process would be beneficial to them (Figure 12). They also noted that a more transparent and consistent alternative solution approval process in municipalities was needed.

Figure 10:
How to Incorporate Innovation

Question: What changes or improvement in the building approval process would you think would be the most effective in enabling more innovative design and construction in Ontario?



Architects and professional engineers are highly trained individuals, but under Ontario's building approval system they are underused. These professionals have a legal obligation, as provided for in the *Architects Act* and the *Professional Engineers Act*, to comply with the relevant statutes and regulations including the *Building Code*.

Larger building projects involve many specialist design professionals including structural engineers, mechanical engineers, fire code engineers, and architects who often deal with the building envelope and the overall building design.

As buildings become more complex it becomes more important to ensure that the overall design is properly coordinated, and that conflicts and clashes between mechanical, structural and fire and other building systems are avoided. This is especially true for buildings which involve alternative solutions. The model *National Building Code* includes administrative provisions for alternative solutions which includes the requirement for a professional engineer or architect who would act as a design coordinator.

Proper design coordination is a best practice which high quality developers, but not all developers, practice. It is not currently required in the professional acts or the *Building Code*, which could result in duplication.

To make full use of highly qualified professional architects and engineers, and to minimize duplication by municipal building departments, it would be both efficient and effective to engage a professional to act as a design coordinator who would properly coordinate the design team's entire design package. British Columbia's Letters of Assurance program has formally required this since the 1990s, and the province has experienced a better climate for fostering innovation and a greater use of alternative solutions. Other jurisdictions, such as Singapore, require design coordination, too. More information on British Columbia's program is outlined in Appendix F.

Additional opportunities for fast tracking arise from the greater use of private sector peer reviewers.

In Ontario, third party, or independent, review of building plans and construction has often been within the purview of the municipal building department. As buildings become more complex in response to technological innovation and increased energy efficiency requirements, and as building codes themselves become more complex, it is often difficult for municipalities to have sufficient expert staff to undertake third part review of building designs. Many jurisdictions rely on independent peer reviewers (other design professionals who are not involved in the building design) to provide a third-party check of the design plans or construction.

Examples of more formalized regulatory regimes for engaging peer reviewers include the certified professional (CP) system which is used in British Columbia for fire safety elements, and British Columbia's structural peer review system under the Association of Professional Engineers and Geoscientists of British Columbia called "Documented Independent Review of Structural Designs", and Chicago's "structural peer review" program, which is also focussed on structural systems. Both are discussed in Appendix F and Appendix G, respectively.

We are proposing an amendment to the *Building Code* which would allow applicants, when submitting building permit applications, to use both design coordination and peer review as a way to fast track their applications.

6.2.1 What does placing a greater reliance on Design Professionals entail?

We are proposing that the government create and appoint a Design Coordinator who would have the same qualifications and training as a professional designer [27] as outlined in the *Building Code*, but would also organize the work of professionals and other designers and engineers.

Role of Design Coordinators:

- Ensure that building plans comply with Division B Part 3 Fire Protection, Occupant Safety, and Accessibility, and Division B Part 4 Structural Design in the Ontario *Building Code*
- Sign off letters of assurance and provide them to building officials when submitting a building permit application (like Vancouver) as proof of coordination of various design professionals
- Perform site inspections (field review) to address specific code items addressed in the letters of assurance and pass reports on to the municipality

The second part of this recommendation would allow applicants to use peer review. This would be one of the requirements outlined in the letters of assurance and would need to be signed off before submitting the entire building permit application to municipal building officials. Similar

[27] Ontario Building Code. Division C. Section 3.2 Qualifications of a Designer.

to Chicago, applicants who decide to use this option would be able to fast track their building permit application since municipal staff would not need to review the building plans.

Role of Peer Review:

- Third-party, licensed professional designer (e.g. having a certificate or license issued under the *Architects Act*), must have considerable experience in the projects they are reviewing
- Responsible for the review of structural, envelope and fire safety elements which include reviewing and identifying the basis for design that may not be specified in the Ontario *Building Code*

6.2.2 What are the benefits?

The benefits of adopting this system would include, but not be limited to, the following:

- More innovation because municipalities can depend on peer review and design coordinator professionals preparing a coherent and coordinated design.
- Faster permits because the municipality would not need to coordinate design and conduct third party review since it would be done by the private sector.
- Better alignment with municipal capability because the municipality would focus on its main areas of expertise: applicable law compliance, process management, and auditing functions; also, a reduction in the number of municipal staff required for these projects.
- Potentially lower permit fees as most plan review work and inspections are done by design professionals

While we expect that this would help alleviate the pressures from municipal staff, we assume that there will be some resistance from some municipalities. This is because we are proposing to eliminate the coordination and reduce the third party review work which is currently the responsibility of municipal staff.

The municipality, as the permit issuing body, still has a responsibility to be satisfied that all plans are code compliant and may undertake spot checks or random checks as necessary.

6.3 Recommendation 3: Greater Use of E-Permitting

Building approvals could be made more conveniently and efficiently through comprehensive use of electronic application and process management systems. This is now the norm in many other industries. Currently, municipalities are under increasing pressure to streamline and improve development, planning, engineering, and building approval processes. In carrying out these obligations, municipalities are using valuable office floor space by printing and storing records of drawings and plans. Existing public sector resources could be better used if staff were redeployed to address their current public priorities rather than trying to find old records.

As indicated by the survey results, a little over half of the applicants have used some form of an electronic filling option when submitting a building application. Most of the respondents noted that having an electronic filing option would be helpful in the building approval process.

Currently, the extent of the electronic filling option in Ontario allows applicants to submit, as well as track, their applications online. While this may be an improvement over the traditional practice of filing numerous copies with the various departments that need to review the application, other cities around the world have upsized the efficiencies of e-permitting. For more detailed information about their e-permitting process please refer to Appendix G.

6.3.1 What does the greater use of e-permitting entail?

We suggest that an electronic permitting system would be a step towards a more efficient system. To achieve the objective of having an efficient and effective electronic permitting system would require that all applicable government agencies (conservation authorities, heritage, transportation, planning), as well as municipal building departments, implement this system outlined by the Province.

In doing so, all municipalities in Ontario would move towards an electronic permitting system which would allow applicants to submit building permit applications, building plans and to obtain and submit applicable agency approvals on-line to a municipality, and to track the status of their applications.

Once municipalities have migrated to their electronic permitting system, we suggest introducing an electronic provincial portal for applying for building permits. This would not only link users to individual municipality's electronic permitting system, but also to other provincial applicable government agencies. This system would modernize the way in which the public interacts with government.

6.3.2 What are the benefits?

As the Singapore case study (Appendix G) shows, moving to an electronic filing system benefits the building and construction industry. Municipal offices in Ontario can have high levels of walk-in traffic, and this can result in long wait times in the office's reception area. Some of the immediate benefits of using an electronic system would include the reduction or elimination of wait times, and the added efficiency in communicating and coordinating information with existing and future applicants and other agencies. For an applicant, the benefits of using an electronic filing permit system seem endless. It would not only support transparency and improve efficiency, but it would also reduce the resources which would be required to drive to and from each municipality to drop off an application. This, in turn, would reduce greenhouse gas emissions. An electronic permitting system would allow both municipal staff members and users (or applicants) to view the status of an application.

Implementing an electronic filing system across all municipalities would not be an easy task. Some municipalities may resist this because of the initial cost impacts; the level of resources that would be needed to implement and maintain the electronic permitting system; and the staffing which would be required to troubleshoot any problems that an applicant might have. However, these challenges should not deter a municipality from switching to an electronic filing system. While the initial costs may be high, many municipal building departments have building reserve funds which could be used for the upfront costs to implement this system.[28] The City of Markham conducted a study for an electronic permitting system and found that over a 6 year-period, the City would achieve net savings of $1.3 million.[29]

[28] Ontario Building Code Act, Section 7.4, 1992.
[29] City of Markham. *E-Plan Implementation - Summary Report 2013,* August 2013.

6.4 Implementation

The recommendations that we have presented in the above sections follow this concurrent two phase approach. The first phase is to establish a multi-stakeholder working group that includes municipalities, industry and the Province. It is imperative that provincial officials participate in this working group so that they learn about the reforms and monitor their successes. This would allow them to help in drafting and promoting legislative changes later in the second phase of our implementation strategy. This working group would be responsible for outlining performance targets. (Some general targets have been outlined in this report. For more information see Appendix E, H and I.) This working group could also set up smaller subcommittees for each of the three recommendations and look at these matters in greater detail. This first phase would include the implementation of pilot projects, and it would be the working group's responsibility to monitor and collect information on which ideas work and which do not.

The second phase of this initiative, which would be carried out simultaneously with the first phase, would pursue action by the Province to support these improvements including substantive measures such as regulatory changes, guidelines and standards.

7.0 Conclusion

This report has been prepared to make the case for the need to reform the Ontario building permit system. There have been indications in the literature that Ontario ranks relatively low in the world for its approval process being slow and inefficient. The World Bank places it at 57th. Most parties who are involved in building approvals agree that the process is slow and cumbersome. Consequently, they favour updating and modernizing the process, and the legislation is long overdue. This report addresses the current system by, first, identifying the problems and issues that exist with the current process and, second, making recommendations to address those issues and modernize the process.

A comprehensive literature review was undertaken as a starting point in an effort to understand the current process in Ontario, Canada, and in other jurisdictions around the world. This was done, in part, to understand current issues and problems with the process and legislation in Ontario, as well to better understand applications and recent innovations which are being used in other jurisdictions.

Problem

The problems with Ontario's current process and legislation were identified initially via an electronic survey of RESCON members. This was followed by a focus group with residential builders to obtain more detail about problems and issues which had been identified. In addition to interacting with residential builders, a focus group was held with Chief Building Officials from several key municipalities to find out their views and concerns with the current process and legislation.

The main problem in Ontario is that the approval and permitting process is too lengthy and complex which often leads to delays. These delays lead to increased costs, which then put upward pressure on housing prices. This, in turn, leads to delays in municipalities obtaining additional property tax revenues from the new construction. The rigid structure in the approval process also curtails innovation and creativity on the part of those who are involved in the process.

Solutions

The main purpose of this report is not only to identify the problems and issues with the approval and permitting process, but to identify solutions which will make the process more efficient and effective. Therefore, based on an understanding of the issues and some best practices and applications which are used in other jurisdictions, recommendations for improving the process follow.

Based on the research three recommendations are made

The first recommendation is to streamline and speed up the applicable law approvals process. Several steps for achieving this goal include: providing realistic time frames for completing the review process and issuing permits; providing clear guidelines for the submission requirements and process; providing better transparency through reporting where an application is in the process; reporting on the time it has taken to process applications in the past (performance review); and developing a process for rapidly resolving interagency conflicts.

The second recommendation is to fast track approvals via peer review and coordination. This approach would place greater reliance on highly trained professionals such as engineers and architects. This would shift the review and sign off for some aspects of the process from municipal employees to specifically trained and approved or certified professionals. This approach is currently in place in several jurisdictions including Chicago and Vancouver.

The third recommendation is to use electronic permitting (e-permitting). Electronic standardized applications will add significant efficiency to the approval process both in terms of submissions and the movement of the files across agencies and offices that must review and approve the file. This will streamline the process and make better use of public sector resources. E-permitting has been praised for its efficiency and effectiveness in Singapore.

Implementation

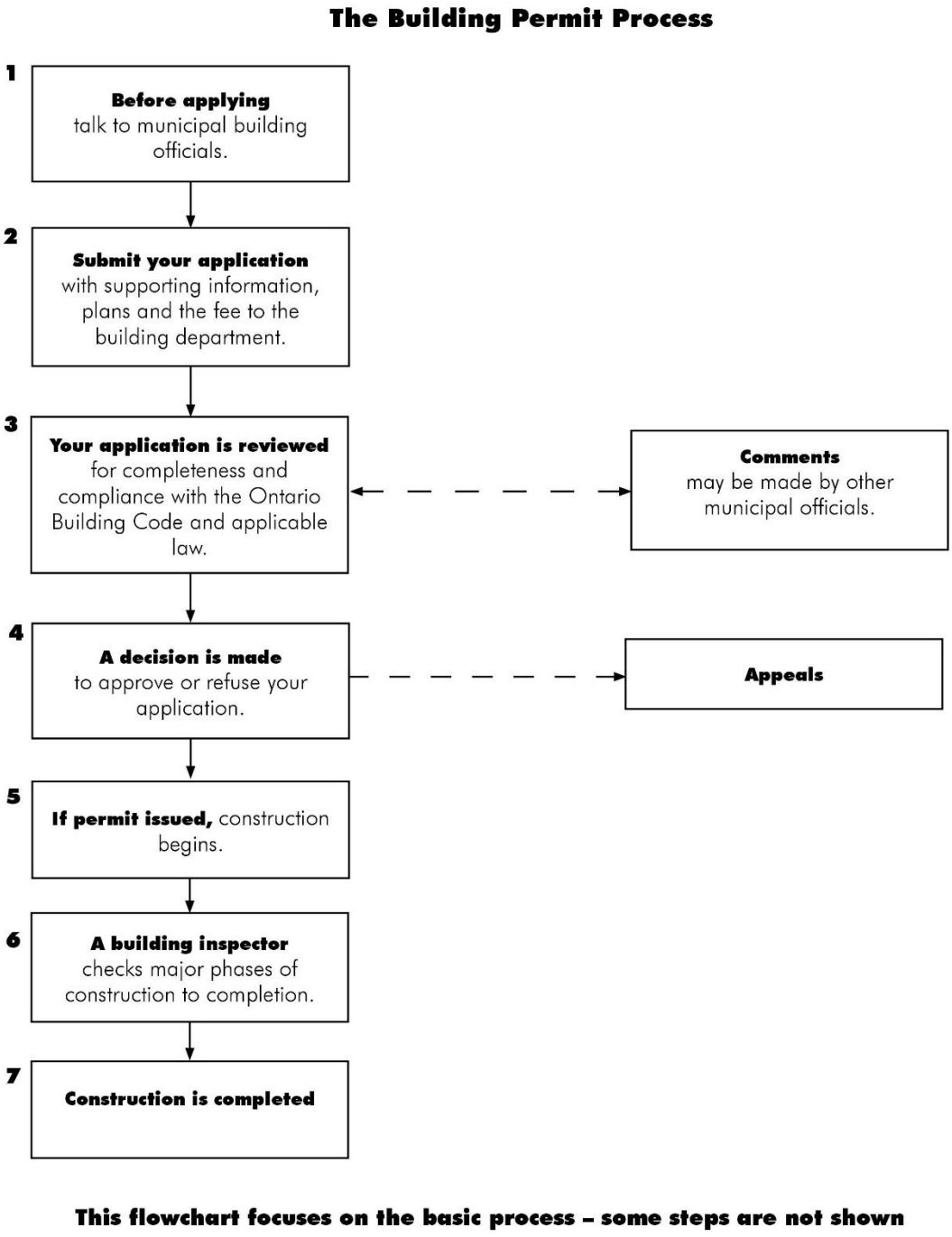
The implementation of these recommendations should be based on two phase approaches as outlined in the report. The first phase is the creation of industry-government working groups to

address each of the recommendations and to help create pilot studies in municipalities which volunteer to implement the recommendations. The second phase is to identify legislative and regulatory changes that are required to fully apply the recommendations via the working groups and the provincial government.

We expect that the implementation of these recommendations will result in modernization of the process which will lead to increased efficiency, shorter timeframes, more innovation and generally better outcomes. One of the benefits of e-permitting is that it is consistent with the Smart City initiative that is currently being encouraged by the Toronto Board of Trade, the City of Toronto, and senior levels of government.

We hope that these recommendations will be considered and undertaken by the Province and that we will see significant improvements and modernization in the building permit process and legislation.

Appendix A: Citizen's Guide to Building Permits



Appendix B: Electronic Survey

User Satisfaction Survey: Building Approvals

The Centre for Urban Research & Land Development (CUR) at Ryerson University is working in association with the Residential Construction Council of Ontario (RESCON) to evaluate user satisfaction with the building approval process in Ontario, in order to identify areas of potential improvement in certain areas.

The scope of this user evaluation includes practices related to:

- Development approvals required by municipalities (planning, site plan, engineering, utilities, heritage, etc.)
- Building and development approvals required from other applicable law agencies (conservation authorities, Ministry of Transportation, Ministry of Environment, etc.)
- Building permit approvals (application procedures, zoning and technical plans review, alternative solution procedures, issuance of the building and occupancy permits).

Four theme areas are being examined in this research:

- **Approval Timelines**: the time required to obtain planning and related approvals, other applicable law approvals, and building permits
- **Building Permit Reviews**: the efficiency and effectiveness of building permit plans review by municipalities
- **Building Code Information**: the availability of building code information, advice and interpretations from provincial and municipal authorities
- **Building Innovation**: the degree to which the building permit process facilitates or restricts alternative building code solutions and construction innovation to achieve provincial energy efficiency, affordability and sustainability objectives

We would appreciate it if you would take a few minutes to complete the following survey on your experience in obtaining building approvals and permits. It should not take more than 20 minutes, and all responses are confidential. Individual respondents will not be identified in our survey report.

TIMELINES

The following questions concern building permit application timelines:

What are the names of the municipalities include size and type of developments for the 3 most recent applications?

	Municipality	Description of Development (i.e. 48 Townhouses, 1 million sq. ft. shopping centre)
Project A		
Project B		
Project C		

How long in months, did the entire approval process take for this project? (I.e. from the date of planning application through to building permit issuance)

	Number of Months
Project A	
Project B	
Project C	

Did your project(s) comply with current official plan and zoning when plans were initially filed?

	Yes	No
Project A		
Project B		
Project C		

If you have answered/chosen "No" please skip the following question

How long, in months, did the planning approval process take for this project, from start to finish? (E.g. the date a complete site plan approval application was made to the date issuance of site plan approval)

	Number of Months
Project A	
Project B	
Project C	

Please indicate whether any of the following other applicable law approvals were required for Project A.

	Required	Not Required
Conservation Authority		
Ministry of Transportation		
Heritage		
Other		

Please indicate whether any of the following other applicable law approvals were required for Project B.

	Required	Not Required
Conservation Authority		
Ministry of Transportation		
Heritage		
Other		

Please indicate whether any of the following other applicable law approvals were required for Project C.

	Required	Not Required
Conservation Authority		
Ministry of Transportation		
Heritage		
Other		

How long did it take to obtain the other applicable law approvals?

	N/A	Less than 1 Month	1-2 Months	2-3 Months	More than 3 Months
Project A					
Project B					
Project C					

At what stage of development approval did you file the building permit application for these projects?

	Before Planning and/or one or more other applicable law approvals were completed	After Planning and all other applicable law approvals were completed
Project A		
Project B		
Project C		

If you have answered or chosen "After Planning and all other applicable law approvals were completed" then please skip the following question

How long did the Building Permit process take, from the date a complete application was filed with all required plans, until the permit was issued?

	10 working days	15 working days	20 working days	30 working days	45 working days	60 working days	Over 60 working days
Project A							
Project B							
Project C							

Do you feel approval of this project was unnecessarily delayed due to the length of any of the of the required approval processes?

	Yes	No
Project A		
Project B		
Project C		

If you have answered or chosen "No" please skip the following question.

Please indicate which parts of the approval process do you feel unnecessarily caused delayed the construction of your projects. (Please select a maximum of 5 responses).

- ☐ Planning approval process
- ☐ Engineering/Utility approval process
- ☐ Conservation Authority approval process
- ☐ Ministry of Transportation approval process
- ☐ Heritage approval process
- ☐ Building permit review and issuance process
- ☐ Lack of up front information/transparency on requirements
- ☐ Lack of initial "over the counter" or online review of application or plan for completeness
- ☐ Lack of follow up and adherence to timeframes by the municipality or other approval agencies
- ☐ Poor coordination between staff of approval bodies
- ☐ Complexity/excess of laws, codes and regulations
- ☐ Unnecessary plans, forms and other paperwork
- ☐ Other: _____

What change or improvement do you think would be most effective in reducing overall municipal approval timelines?

BUILDING PERMIT PLANS REVIEW

The following questions concern municipal plans review procedures.

Please select the extent to which you agree or disagree with the following statements about building permit applications:

	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree
Permit application and plan submission requirements are generally straightforward, as compared to planning and other approvals					
Required plan submissions and reviews are unnecessarily detailed and extensive given the issues identified					
The building department provides helpful information and guidelines or checklists on the expected content of building plans submitted for a building permit					
Plan reviews take too long in most cases					
Resubmission of permit plans is rarely necessary					

When making permit applications for these and other projects, have you used an electronic filing option? (I.e. being able to track your application online, submitting documents online, make payments, etc.?)

- ☐ Yes
- ☐ No

If you answered or chosen "No", please skip the following question.

Please indicate the scope of electronic options that were available. (Please select all that apply).

- ☐ The building permit application can be submitted online
- ☐ Documentation and approvals as required, from applicable law agencies can be submitted online
- ☐ Building permit fees can be paid online
- ☐ Building plans can be submitted online with building permit application
- ☐ The status of the building permit application can be tracked online by the applicant
- ☐ Other: _____

How beneficial would a universally available electronic building permit service option consisting of online application, plans submission, fee payment, review status tracking and permit issuance be to you?

Not at all helpful	Slightly helpful	Somewhat helpful	Very helpful	Extremely helpful	N/A

Do you have any recommendations for changes or improvements to building permit procedures?

BUILDING CODE INFORMATION

The following questions concern the availability of information on the application and enforcement of building code provisions:

What source(s) have you used for information and advice on building code matters? (Please select all that apply).

	Municipal Building Department/ Inspector
	Provincial Building Branch
	Architect
	Specialist/Consultant
	Contractors
	None/ Don't Know
	Other:

If you have answered or chosen "Municipal Building Department/Inspector" and/ or Provincial Building Branch, please answer the following questions below.

How would you rate the information and advice provided by the Provincial Building Branch?

Poor	Fair	Neutral	Good	Excellent	N/A

What was the reason for your rating?

How would you rate the information and advice provided by the Municipal Building Department/Inspector?

Poor	Fair	Neutral	Good	Excellent	N/A

What was the reason for your rating?

Do you think any changes or improvements to the availability of building code information are necessary to assist users?

- ☐ Yes
- ☐ No
- ☐ Don't Know

If you answered or chosen "No" or "Don't Know" please skip the following question.

What change or improvement to the availability of building code information, advice and interpretations do you think would be most helpful?

- ☐ Online availability of code information
- ☐ Access to municipal officials
- ☐ More concise and user friendly building code
- ☐ Access to provincial advisors
- ☐ More consistency between municipalities
- ☐ Other:_____

BUILDING INNOVATION

The following questions concern your use of alternative building code solutions, and municipal approval of innovative design and construction:

In your experience, does the building code/building permit process readily enable you to incorporate innovative design and construction elements into your developments?

- ☐ Yes.
- ☐ No
- ☐ Don't Know

Have you ever filed a permit application using the alternative solution provisions in the building code?

- ☐ Yes
- ☐ No
- ☐ Don't Know

If you have answered or chosen "No", or "Don't Know" please skip the following question.

Was the municipality receptive/helpful with your alternative solution process?

- ☐ Yes.
- ☐ No

What was your overall experience with the alternative solution process?

Poor	Fair	Neutral	Good	Excellent	N/A

Please indicate the extent to which you would agree or disagree with the following statements:

	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree	Don't Know
Municipalities have the expertise and resources to adequately and efficiently evaluate alternative solutions						
The municipal alternative solution process works well						
Alternative solution processes and approvals are generally consistent in municipalities						
Municipalities routinely defer alternative solutions to the Building Code Commission						

Have you ever applied to the Building Code Commission for a ruling on a building code matter?

- ☐ Yes
- ☐ No
- ☐ Don't Know

If you have answered or chosen "No" or "Don't Know" please skip the following question.

Were you satisfied with the Building Code Commission process?

- ☐ Yes
- ☐ No

If you have answered or chosen "Yes" please skip the following question.

Can you please explain why you were not satisfied with the Building Code Comission process?

Are changes or improvement necessary to improve your ability to incorporate innovative design and alternative solutions under the building code?

- ☐ Yes
- ☐ No

If you have answered "No" please skip the following question.

What changes or improvements do you think would be most effective in enabling more innovation in design and construction in Ontario?

- ☐ Ability to rely on licensed professional engineers, architects, or registered code agents as alternative to municipal plan approval
- ☐ More transparent and consistent alternative solution approval processes in municipalities
- ☐ Improved access to dedicated provincial approval body
- ☐ Other:_____

What would you say is the most critical area for improvement in terms of building approval? (1 being a low priority, to 5 being a top priority)

	Level of Importance
Building Permit Timelines	
Building Permit Procedures	
Building Permit Information	
Building Innovation	

Are there any final thoughts or comments that you wish to add?

Which of the following best describes your occupation?

- ☐ Developer
- ☐ Builder
- ☐ Contractor
- ☐ Architect/designer
- ☐ Professional engineer
- ☐ Building code consultant
- ☐ Other: please specify: _____

Thank you for your assistance.

Appendix C: Survey Results

Question 1

Please list up to 3 recent projects for which you are able to answer questions about approval timelines

Text input cell (row 2, column 2)

Text input
New Tecumseth
Brampton
Markham
Toronto
toronto
Cambridge
Vaughan
Ajax
Toronto
Toronto
Toronto
Vaughan
Bradford
Richmond Hill
Richmond hill
Richmond hill
Durham
Toronto
Scarborough
Cambridge
Toronto
peel

Text input cell (row 2, column 3)

Text input
200 Detached homes and 40 townhouses
425 single family dwellings
Town Houses
2 million sq ft mixed use development
41 condo apartments
Plan of Subdivision, Low-Rise Development approximately 400 units
17 single family dwellings- Custom.
27 - townhouse, condo road
388 condo apartments
Mixed use Commercial Residential, 368,000 square feet
Mixed use Commercial Residential, 368,000 square feet
78 Detached Homes
Towns, semis, singles
113 Detached houses
114 townhouses ,common element condo with nested condo

114 stacked condo towns
+/- 75 residential units
58 Storey Mix Use
96 stack townhomes with 1 level of underground parking
400 unit low-rise residential development
Flaire - 11-Storey residential condominium, 285 units
246 units 50 townhouses 20 semis and 176 singles

Text input cell (row 3, column 2)

Text input
Toronto
Halton Hills
Vaughan
Toronto
Richmond hill
Whitby
Vaughan
Ajax
Toronto
Toronto
Toronto
Aurora
Niagara
Richmond Hill
Toronto
Toronto
Durham
Toronto
Whitby
Toronto
york

Text input cell (row 3, column 3)

Text input
10 Detached homes
142 townhouses
S.F.D.
196 unit back to back and stacked town home development
100 stacked towns
Plan of Subdivision, Low-Rise Development 23 single-detached
123 townhouses.
35 - 37 ft singles on a condo road
20 mixed use condo tenure
Private House 4000 square feet
Private House 4000 square feet

Mix of Towns, Semis, Detached Homes
Town, semis
60 Stacked townhomes
113 stacked town homes w U/G parking
113 condo towns
+/- 80 residential units
29 Storey Condo
23 single detached homes
Soul - 17- Storey residential condominium, 213 units
38 singles

Text input cell (row 4, column 2)

Text input
Pickering
Port Severn
Brampton
Toronto
Toronto
Brampton
Collingwood
Toronto
Whitby
Vaughn
Vaughan
Durham
Whitby
Toronto
peel

Text input cell (row 4, column 3)

Text input
51 Detached homes
32 villas 42 towns
31 storey residential building with at grade retail
120 condo apartments
Plan of Subdivision, Low-Rise Development 53 single-detached
177 condo apartments
Private House 3500 square feet
Town, semis
67 townhouses ,common element
67 stacked condo towns
+/- 30 Custom SFD.
Secondary Plan residential uses
Connect - 16-Storey residential condominium, 210 units
40 singles

Question 2

How long, in months, did the entire approval process take for this project? (i.e. from the date of planning application through to building permit issuance)

Text input cell (row 2, column 2)

Text input
1 year
36 months
48
20
36 months ongoing
60 months
36
120 ++++
120 ++++
24
36
4 years
31/2 years
33/4 years
+/- 36
30
7
24+
30
5 years

Text input cell (row 3, column 2)

Text input
2 years
15 months
36
18+
12 months
18 still not approved
30
8
8
24
12
3 years
3 yrs
3 yrs
+/- 36
24

12+
30
2 years

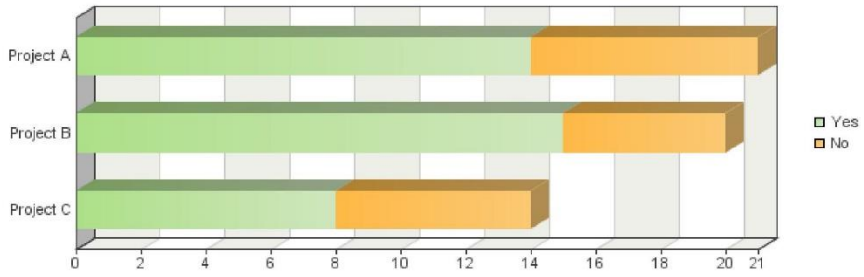
Text input cell (row 4, column 2)

Text input
3 years
18 months
36
10+
16 months ongoing
12
4
15
3 yrs
2years
+/- 24
24+
20

Question 3

Did your project(s) comply with current planning regulations (i.e. official plan and zoning) when plans were initially filed?

Levels



	Yes	No	Sum
Project A	14 66.67% 25.45%	7 33.33% 12.73%	21 100% 38.18%
Project B	15 75% 27.27%	5 25% 9.09%	20 100% 36.36%
Project C	8 57.14% 14.55%	6 42.86% 10.91%	14 100% 25.45%
Sum	37 - 67.27%	18 - 32.73%	55 - 100%

***Sequence of numbers in a cell**

Absolute frequency

Relative frequency row

Relative frequency

Question 4

How long, in months, did the Planning approval process take for this project, from start to finish? (e.g. the date a complete site plan approval application was made to the date of issuance of site plan approval)

Text input cell (row 2, column 2)

Text input
1 year
60
48
20
120++++
12
6
48
+/- 12
48
12
ongoing
11

Text input cell (row 3, column 2)

Text input
1 year
36
18 still not comnplete
20
5
12
8
36
+/- 12
30
20
18

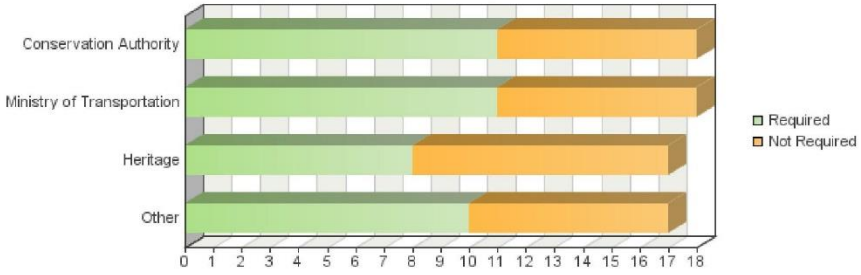
Text input cell (row 4, column 2)

Text input
1 year
24
4
8
+/- 12
ongoing

Question 5

Please indicate whether any of the following other applicable law approvals were required for Project A.

Levels



	Required	Not Required	Sum
Conservation Authority	11 61.11% 15.71%	7 38.89% 10%	18 100% 25.71%
Ministry of Transportation	11 61.11% 15.71%	7 38.89% 10%	18 100% 25.71%
Heritage	8 47.06% 11.43%	9 52.94% 12.86%	17 100% 24.29%
Other	10 58.82% 14.29%	7 41.18% 10%	17 100% 24.29%
Sum	40 - 57.14%	30 - 42.86%	70 - 100%

***Sequence of numbers in a cell**

Absolute frequency

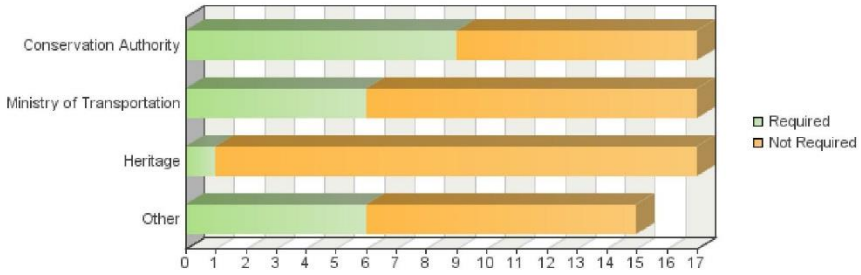
Relative frequency row

Relative frequency

Question 6

Please indicate whether any of the following other applicable law approvals were required for Project B.

Levels



	Required	Not Required	Sum
Conservation Authority	9 52.94% 13.64%	8 47.06% 12.12%	17 100% 25.76%
Ministry of Transportation	6 35.29% 9.09%	11 64.71% 16.67%	17 100% 25.76%
Heritage	1 5.88% 1.52%	16 94.12% 24.24%	17 100% 25.76%
Other	6 40% 9.09%	9 60% 13.64%	15 100% 22.73%
Sum	22 - 33.33%	44 - 66.67%	66 - 100%

***Sequence of numbers in a cell**

Absolute frequency

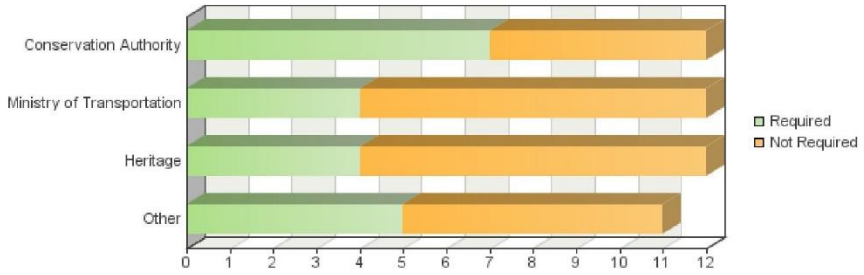
Relative frequency row

Relative frequency

Question 7

Please indicate whether any of the following other applicable law approvals were required for Project C.

Levels



	Required	Not Required	Sum
Conservation Authority	7 58.33% 14.89%	5 41.67% 10.64%	12 100% 25.53%
Ministry of Transportation	4 33.33% 8.51%	8 66.67% 17.02%	12 100% 25.53%
Heritage	4 33.33% 8.51%	8 66.67% 17.02%	12 100% 25.53%
Other	5 45.45% 10.64%	6 54.55% 12.77%	11 100% 23.4%
Sum	20 - 42.55%	27 - 57.45%	47 - 100%

***Sequence of numbers in a cell**

Absolute frequency

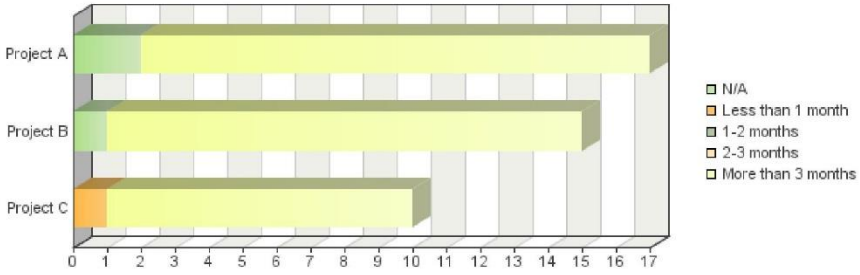
Relative frequency row

Relative frequency

Question 8

How long did it take to obtain all the other "applicable law" approvals?

Levels



	N/A	Less than 1 month	1-2 months	2-3 months	More than 3 months	Sum
Project A	2 11.76% 4.76%	0 0% 0%	0 0% 0%	0 0% 0%	15 88.24% 35.71%	17 100% 40.48%
Project B	1 6.67% 2.38%	0 0% 0%	0 0% 0%	0 0% 0%	14 93.33% 33.33%	15 100% 35.71%
Project C	0 0% 0%	1 10% 2.38%	0 0% 0%	0 0% 0%	9 90% 21.43%	10 100% 23.81%
Sum	3 - 7.14%	1 - 2.38%	0 - 0%	0 - 0%	38 - 90.48%	42 - 100%

***Sequence of numbers in a cell**

Absolute frequency

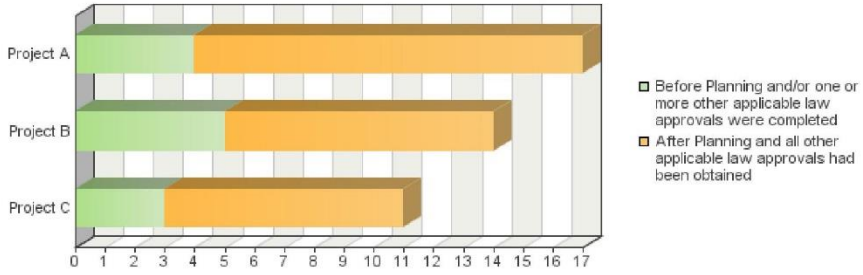
Relative frequency row

Relative frequency

Question 9

At what stage of development approval did you file the building permit application for these projects?

Levels



	Before Planning and/or one or more other applicable law approvals were completed	After Planning and all other applicable law approvals had been obtained	Sum
Project A	4 23.53% 9.52%	13 76.47% 30.95%	17 100% 40.48%
Project B	5 35.71% 11.9%	9 64.29% 21.43%	14 100% 33.33%
Project C	3 27.27% 7.14%	8 72.73% 19.05%	11 100% 26.19%
Sum	12 - 28.57%	30 - 71.43%	42 - 100%

***Sequence of numbers in a cell**

Absolute frequency

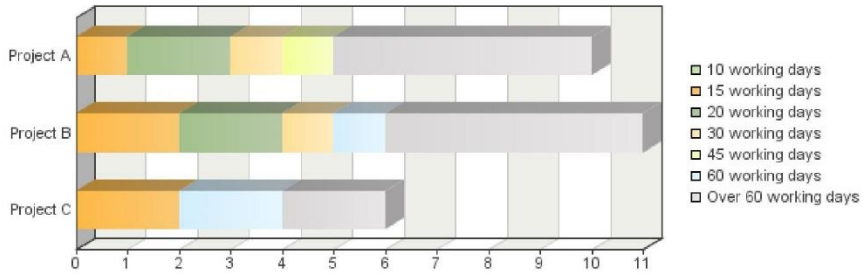
Relative frequency row

Relative frequency

Question 10

How long did the Building Permit process take, from the date a complete application was filed with all required plans, until the permit was issued?

Levels



	10 working days	15 working days	20 working days	30 working days	45 working days	60 working days	Over 60 working days	Sum
Project A	0 0% 0%	1 10% 3.7%	2 20% 7.41%	1 10% 3.7%	1 10% 3.7%	0 0% 0%	5 50% 18.52%	10 100% 37.04%
Project B	0 0% 0%	2 18.18% 7.41%	2 18.18% 7.41%	1 9.09% 3.7%	0 0% 0%	1 9.09% 3.7%	5 45.45% 18.52%	11 100% 40.74%
Project C	0 0% 0%	2 33.33% 7.41%	0 0% 0%	0 0% 0%	0 0% 0%	2 33.33% 7.41%	2 33.33% 7.41%	6 100% 22.22%
Sum	0 - 0%	5 - 18.52%	4 - 14.81%	2 - 7.41%	1 - 3.7%	3 - 11.11%	12 - 44.44%	27 - 100%

***Sequence of numbers in a cell**

Absolute frequency

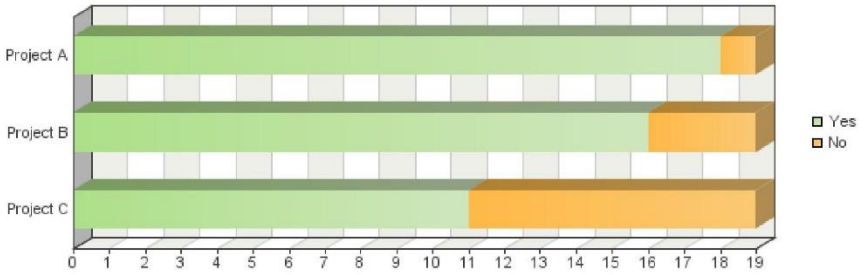
Relative frequency row

Relative frequency

Question 11

Do you feel the construction of these projects was unnecessarily delayed due to the length of any of the required approval processes?

Levels



	Yes	No	Sum
Project A	18 94.74% 31.58%	1 5.26% 1.75%	19 100% 33.33%
Project B	16 84.21% 28.07%	3 15.79% 5.26%	19 100% 33.33%
Project C	11 57.89% 19.3%	8 42.11% 14.04%	19 100% 33.33%
Sum	45 - 78.95%	12 - 21.05%	57 - 100%

***Sequence of numbers in a cell**

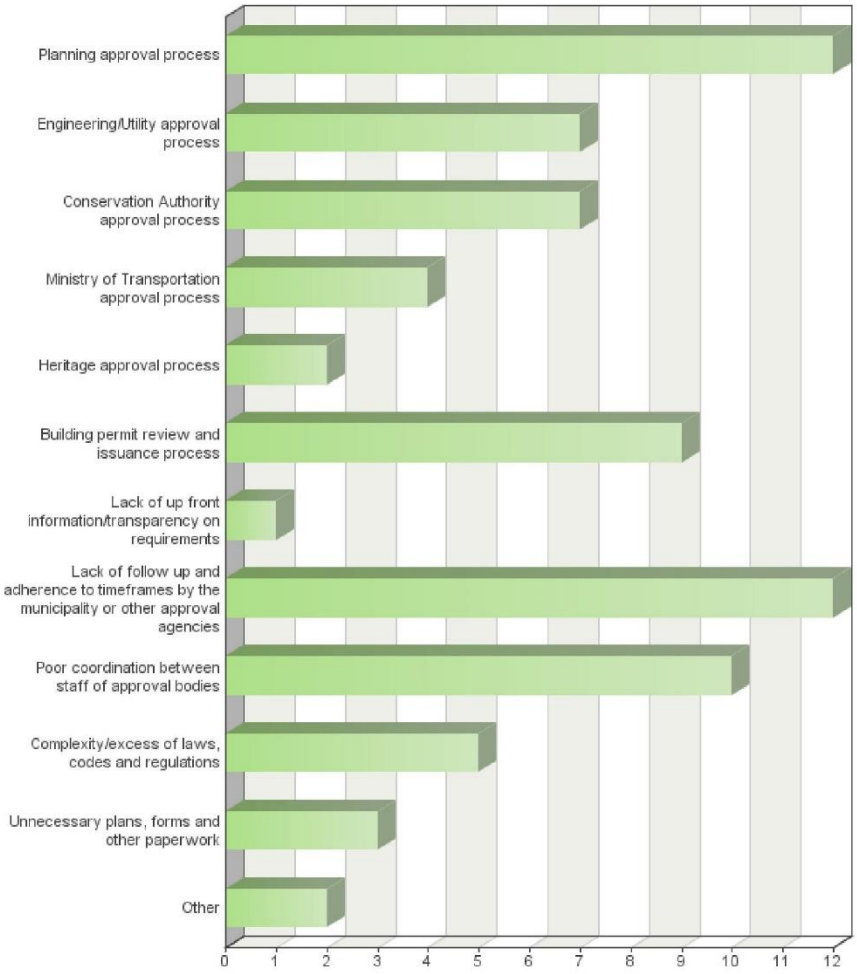
Absolute frequency

Relative frequency row

Relative frequency

Question 12

Please indicate which parts of the approval process do you feel unnecessarily caused delayed the construction of your projects? (Please select a maximum of 5 responses).



Frequency table

Choices	Absolute frequency	Relative frequency by choice	Relative frequency	Adjusted relative frequency
Planning approval process	12	16.22%	18.75%	70.59%
Engineering/Utility approval process	7	9.46%	10.94%	41.18%
Conservation Authority approval process	7	9.46%	10.94%	41.18%
Ministry of Transportation approval process	4	5.41%	6.25%	23.53%
Heritage approval process	2	2.7%	3.12%	11.76%
Building permit review and issuance process	9	12.16%	14.06%	52.94%
Lack of up front information/transparency on requirements	1	1.35%	1.56%	5.88%
Lack of follow up and adherence to timeframes by the municipality or other approval agencies	12	16.22%	18.75%	70.59%
Poor coordination between staff of approval bodies	10	13.51%	15.62%	58.82%
Complexity/excess of laws, codes and regulations	5	6.76%	7.81%	29.41%
Unnecessary plans, forms and other paperwork	3	4.05%	4.69%	17.65%
Other	2	2.7%	3.12%	11.76%
Sum:	74	100%	-	-
Not answered:	47	-	73.44%	-

Total answered: 17

Last choice text input
Plans reviewed over and over again by municipality, with differing results each time

Question 13

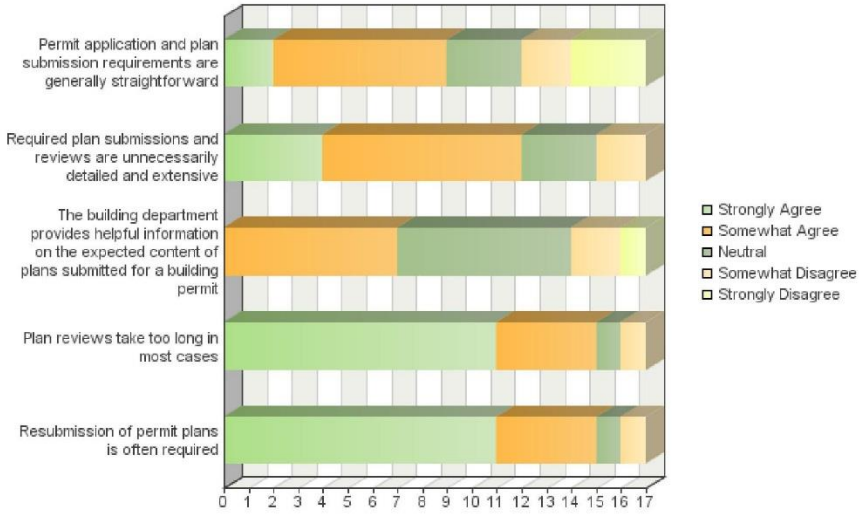
What change or improvement do you think would be most effective in reducing overall building approval timelines?

Text input
All three Municipalities are severely understaffed. They set budgets a year in advance without knowing what volume of applications will be submitted that year.
drawings are stamped by an engineer and a review of same occurs should not.
A pragmatic approach to development approvals specifically planning applications within the urban growth centre would help ease the planning process. Politically motivated decision making contrary to provincial policy made the overall process extremely long. Greater co-ordination between approval agencies would aid in streamlining the process.
minimize redtape, consistent application of guidelines by municipalities and agencies,
hire more people or consultants that understand the process to quicken the process. so we do not hear the excuse that we are too busy and they stop putting roadblocks for the approvals
Toronto: Take the politic out of the equation. Increase staffing at every level. Train staff about the benefits of building and development. Enact timeline policies and adhere to them.
A Planning Approval Process that works and is intended to speed the approval rather than delay it. An Architectural Guidance Committee, made up of Registered and practicing architects (not planners) that could review applications and have the power to overrule decisions of the City Planners.
More cohesion between municipal staff from planning/engineering/building departments. Continuation of certified model applications prior to building permit application submission with reduced fees for same.
Better communication between internal municipal staff. More competent municipal staff. More focus on the result instead of the process itself. More consideration of the developer/builder reasonably expected schedule.
I would start with taking the unqualified politicians out of the process . Other than allowing the staff who are professionals in there individual fields to do their job it seems to us that the politicians are playing planner , engineer ,public works managers and lawyers with little or no training . They have too much influence over staff and there schedules why would they have the last word in this process. While some may be business people who understand the time value of money many think that we as an industry are making to much money and we can afford to fund there wish list or political ambitions . Few realize that every dollar we spend on approvals goes right to the bottom line and is reflected in our retail price.
Increase clarity and consistency in roles and responsibilities, processes and requirements by municipalities and agencies.
Municipalities especially Toronto, need to look at staffing requirements. Very few reviewers for many projects seems to the issues where districts are being flooded by applications. Review start times and duration need to be addressed.

Question 14

Please select the extent to which you agree or disagree with the following statements about the building permit process, based on your experience with these and other projects:

Levels



	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree	Sum
Permit application and plan submission requirements are generally straightforward	2 11.76% 2.35%	7 41.18% 8.24%	3 17.65% 3.53%	2 11.76% 2.35%	3 17.65% 3.53%	17 100% 20%
Required plan submissions and reviews are unnecessarily detailed and extensive	4 23.53% 4.71%	8 47.06% 9.41%	3 17.65% 3.53%	2 11.76% 2.35%	0 0% 0%	17 100% 20%
The building department provides helpful information on the expected content of plans submitted for a building permit	0 0% 0%	7 41.18% 8.24%	7 41.18% 8.24%	2 11.76% 2.35%	1 5.88% 1.18%	17 100% 20%
Plan reviews take too long in most cases	11 64.71% 12.94%	4 23.53% 4.71%	1 5.88% 1.18%	1 5.88% 1.18%	0 0% 0%	17 100% 20%

Resubmission of permit plans is often required	11 64.71% 12.94%	4 23.53% 4.71%	1 5.88% 1.18%	1 5.88% 1.18%	0 0% 0%	17 100% 20%
Sum	28 - 32.94%	30 - 35.29%	15 - 17.65%	8 - 9.41%	4 - 4.71%	85 - 100%

***Sequence of numbers in a cell**

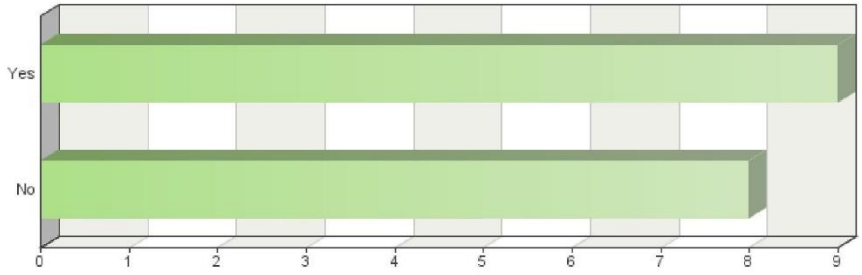
Absolute frequency

Relative frequency row

Relative frequency

Question 15

When making permit applications for these and other projects, have you used an electronic filing option? (i.e. being able to track your application online, submitting documents online, make payments, etc.)?



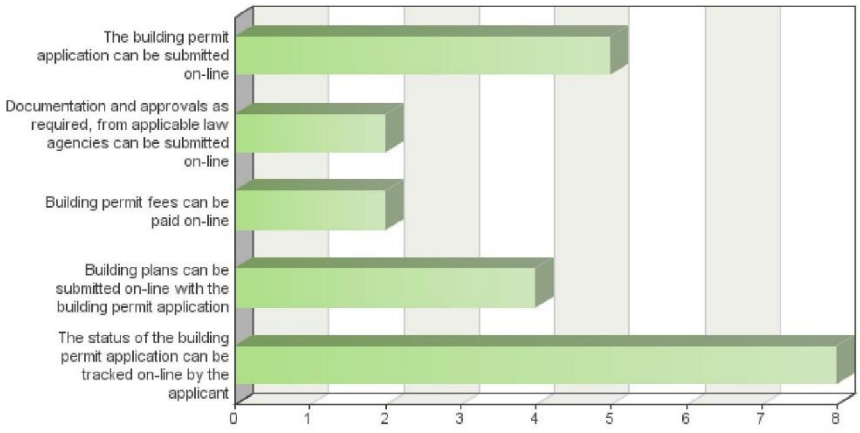
Frequency table

Choices	Absolute frequency	Relative frequency	Adjusted relative frequency
Yes	9	14.06%	52.94%
No	8	12.5%	47.06%
Sum:	17	26.56%	100%
Not answered:	47	73.44%	-

Total answered: 17

Question 16

Please indicate the scope of electronic options that were available (Please select all that apply).



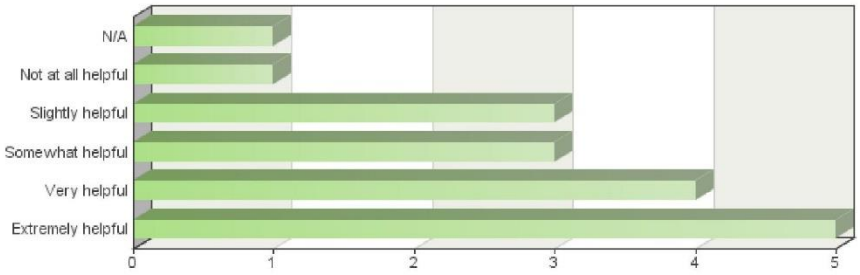
Frequency table

Choices	Absolute frequency	Relative frequency by choice	Relative frequency	Adjusted relative frequency
The building permit application can be submitted on-line	5	23.81%	7.81%	55.56%
Documentation and approvals as required, from applicable law agencies can be submitted on-line	2	9.52%	3.12%	22.22%
Building permit fees can be paid on-line	2	9.52%	3.12%	22.22%
Building plans can be submitted on-line with the building permit application	4	19.05%	6.25%	44.44%
The status of the building permit application can be tracked on-line by the applicant	8	38.1%	12.5%	88.89%
Sum:	21	100%	-	-
Not answered:	55	-	85.94%	-

Total answered: 9

Question 17

How beneficial would a universally available electronic building permit service option consisting of online application, plan submission, fee payment, review status tracking and permit issuance be to you?



Frequency table

Levels	Absolute frequency	Relative frequency	Adjusted relative frequency
N/A	1	1.56%	5.88%
Not at all helpful	1	1.56%	5.88%
Slightly helpful	3	4.69%	17.65%
Somewhat helpful	3	4.69%	17.65%
Very helpful	4	6.25%	23.53%
Extremely helpful	5	7.81%	29.41%
Sum:	17	26.56%	100%
Not answered:	47	73.44%	-

Total answered: 17

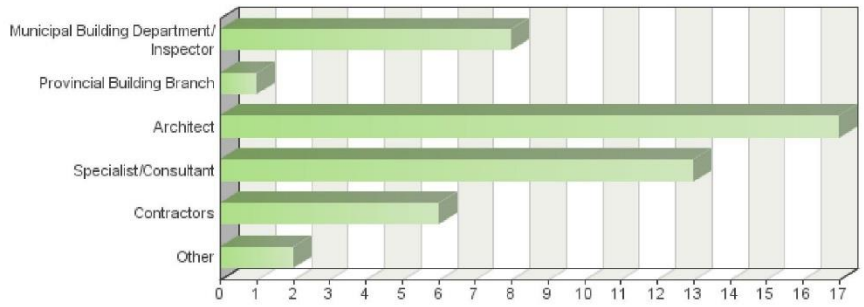
Question 18

Do you have any recommendations for changes or improvements to building permit procedures?

Text input
Municipalities need to hire more people.
Stream line of repeat permits should only be a grading review and architectural compliance.
The standardization of building permit applications across the province has just lead to additional forms that the municipalities use outside the process that is different from municipality to municipality. The concept was good but the implementation has just resulted in a work around process.
Lower the insurance requirements so that outside consultants may issue the permits.
Just need better communication and a speedier process
There should exist a senior staff member that can arbitrate or mediate or be the voice or reason on disputes with plans examiners .Its not right that the cost of a code consultant and the time involved is often what is needed to resolve matters on an application and there by remove the issue of liability from the municipality. The municipalities should not have to worry about liability when experience and reasonableness would suffice suffice had they been in the private realm. Too many government employees can not due there job by the powers vested in them by there associations or licensing associations for fear of repercussions from there employers. Presumably they were hired to do there job because they are qualified.
When building permit applications are made, hard copy drawings at such time should not be submitted. I have found that most cases then not by the time a reviewer gets to your file, drawings have changed and been updated. All reviewers re ask for a fresh set of drawings when the are about to begin their review and each reviewer has their own preference.

Question 19

What source(s) have you used for information and advice on building code matters? (Please select all that apply)



Frequency table

Choices	Absolute frequency	Relative frequency by choice	Relative frequency	Adjusted relative frequency
Municipal Building Department/ Inspector	8	17.02%	12.5%	47.06%
Provincial Building Branch	1	2.13%	1.56%	5.88%
Architect	17	36.17%	26.56%	100%
Specialist/Consultant	13	27.66%	20.31%	76.47%
Contractors	6	12.77%	9.38%	35.29%
Other	2	4.26%	3.12%	11.76%
Sum:	47	100%	-	-
Not answered:	47	-	73.44%	-

Total answered: 17

Last choice text input
engineer
Lawyers

Question 20

How would you rate the information and advice provided by the Provincial Building Branch?

Frequency table

Levels	Absolute frequency	Relative frequency	Adjusted relative frequency
Good	1	1.56%	100%
Sum:	1	1.56%	100%
Not answered:	63	98.44%	-

Total answered: 1

Question 21

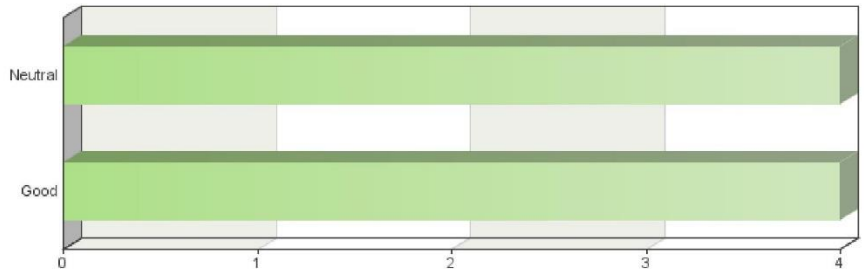
What was the reason for your rating?

Text input

They are straight forward do not agree with all of their adherence.

Question 22

How would you rate the information and advice provided by the municipal building department/inspector?



Frequency table

Levels	Absolute frequency	Relative frequency	Adjusted relative frequency
Neutral	4	6.25%	50%
Good	4	6.25%	50%
Sum:	8	12.5%	100%
Not answered:	56	87.5%	-

Total answered: 8

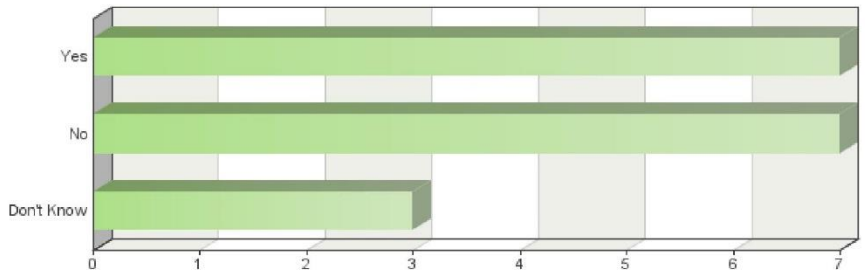
Question 23

What was the reason for your rating?

Text input
When available the individual is a good source of information.
the inspectors and city official do not want to take responsibility they ask for a engineers certificate
Staff very reluctant to give opinions on OBC interpretation questions ahead of full building permit application submissions. Would prefer open dialogue prior to plan completion to edit out "errors" on plans prior to submission to reduce comments and speed up review process.
They have been able to hepl most cases.
Has generally been productive.
See above . They fear for there jobs but they often times have excellent practical experience . So many o f the good field inspectors with practical experience could help the plans examiners if there was a proper internal protocol.
experience has been both positive and negative across various municipalities

Question 24

Do you think any changes or improvements to the availability of building code information are necessary to assist users?



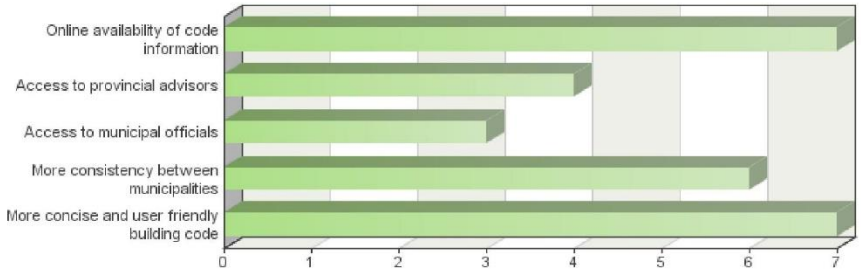
Frequency table

Choices	Absolute frequency	Relative frequency	Adjusted relative frequency
Yes	7	10.94%	41.18%
No	7	10.94%	41.18%
Don't Know	3	4.69%	17.65%
Sum:	17	26.56%	100%
Not answered:	47	73.44%	-

Total answered: 17

Question 25

What change or improvement to the availability of building code information and advice do you think would be most helpful?



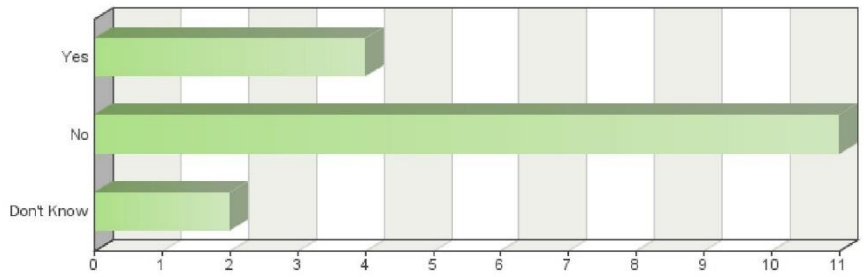
Frequency table

Choices	Absolute frequency	Relative frequency by choice	Relative frequency	Adjusted relative frequency
Online availability of code information	7	25.93%	10.94%	100%
Access to provincial advisors	4	14.81%	6.25%	57.14%
Access to municipal officials	3	11.11%	4.69%	42.86%
More consistency between municipalities	6	22.22%	9.38%	85.71%
More concise and user friendly building code	7	25.93%	10.94%	100%
Sum:	27	100%	-	-
Not answered:	57	-	89.06%	-

Total answered: 7

Question 26

In your experience, does the building code/building permit process readily enable you to incorporate innovative design and construction elements into your developments?



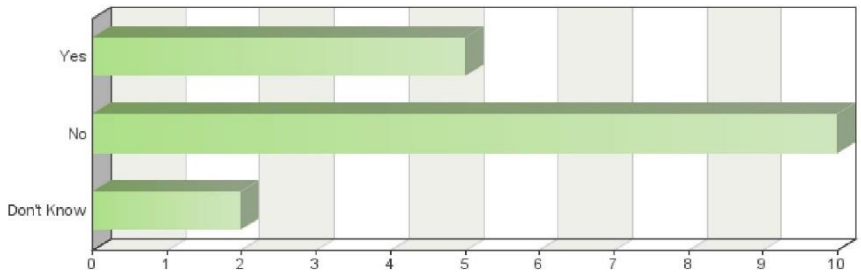
Frequency table

Choices	Absolute frequency	Relative frequency	Adjusted relative frequency
Yes	4	6.25%	23.53%
No	11	17.19%	64.71%
Don't Know	2	3.12%	11.76%
Sum:	17	26.56%	100%
Not answered:	47	73.44%	-

Total answered: 17

Question 27

Have you ever filed a permit application using the alternative solution provisions in the building code?



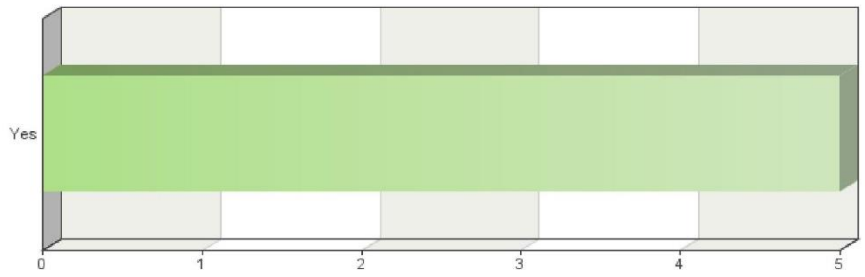
Frequency table

Choices	Absolute frequency	Relative frequency	Adjusted relative frequency
Yes	5	7.81%	29.41%
No	10	15.62%	58.82%
Don't Know	2	3.12%	11.76%
Sum:	17	26.56%	100%
Not answered:	47	73.44%	-

Total answered: 17

Question 28

Was the municipality receptive/helpful with your alternative solution process?



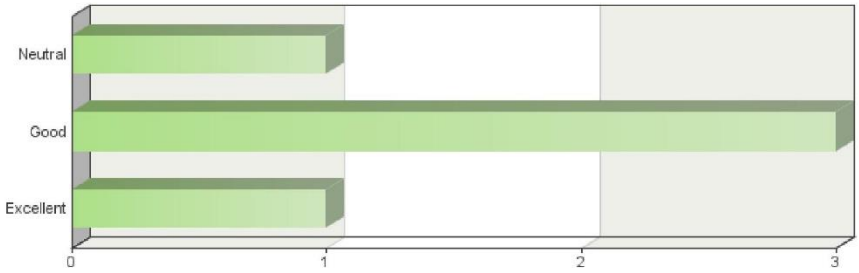
Frequency table

Choices	Absolute frequency	Relative frequency	Adjusted relative frequency
Yes	5	7.81%	100%
Sum:	5	7.81%	100%
Not answered:	59	92.19%	-

Total answered: 5

Question 29

What was your overall experience with the alternative solutions process?



Frequency table

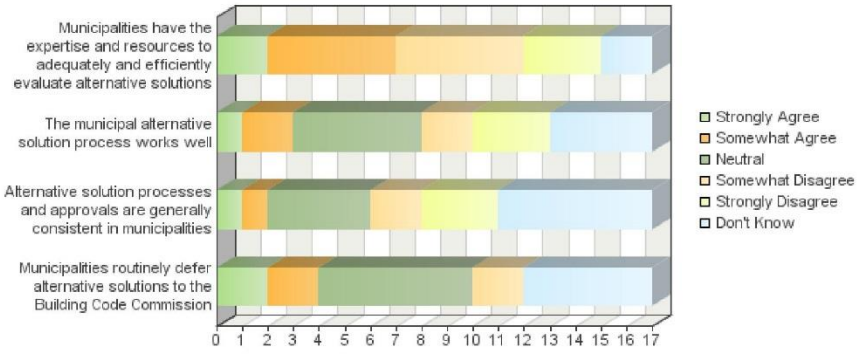
Levels	Absolute frequency	Relative frequency	Adjusted relative frequency
Neutral	1	1.56%	20%
Good	3	4.69%	60%
Excellent	1	1.56%	20%
Sum:	5	7.81%	100%
Not answered:	59	92.19%	-

Total answered: 5

Question 30

Please indicate the extent to which you would agree or disagree with the following statements.

Levels



	Strongly Agree	Somewhat Agree	Neutral	Somewhat Disagree	Strongly Disagree	Don't Know	Sum
Municipalities have the expertise and resources to adequately and efficiently evaluate alternative solutions	2 11.76% 2.94%	5 29.41% 7.35%	0 0% 0%	5 29.41% 7.35%	3 17.65% 4.41%	2 11.76% 2.94%	17 100% 25%
The municipal alternative solution process works well	1 5.88% 1.47%	2 11.76% 2.94%	5 29.41% 7.35%	2 11.76% 2.94%	3 17.65% 4.41%	4 23.53% 5.88%	17 100% 25%
Alternative solution processes and approvals are generally consistent in municipalities	1 5.88% 1.47%	1 5.88% 1.47%	4 23.53% 5.88%	2 11.76% 2.94%	3 17.65% 4.41%	6 35.29% 8.82%	17 100% 25%
Municipalities routinely defer alternative solutions to the Building Code Commission	2 11.76% 2.94%	2 11.76% 2.94%	6 35.29% 8.82%	2 11.76% 2.94%	0 0% 0%	5 29.41% 7.35%	17 100% 25%
Sum	6 - 8.82%	10 - 14.71%	15 - 22.06%	11 - 16.18%	9 - 13.24%	17 - 25%	68 - 100%

***Sequence of numbers in a cell**

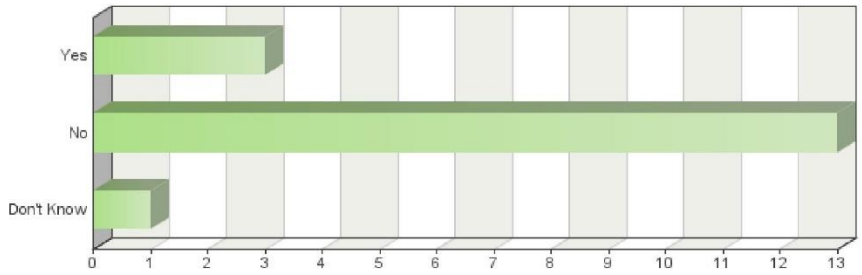
Absolute frequency

Relative frequency row

Relative frequency

Question 31

Have you ever applied to the Building Code Commission for a ruling on a building code matter?



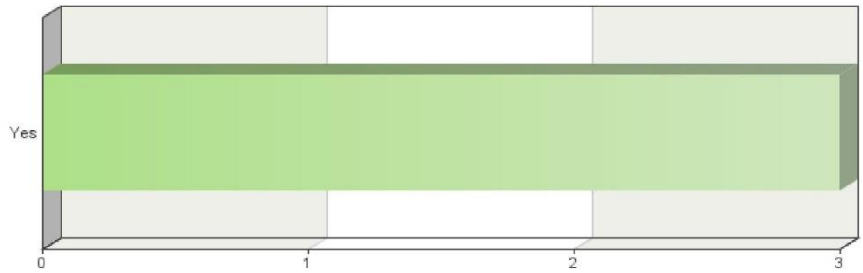
Frequency table

Choices	Absolute frequency	Relative frequency	Adjusted relative frequency
Yes	3	4.69%	17.65%
No	13	20.31%	76.47%
Don't Know	1	1.56%	5.88%
Sum:	17	26.56%	100%
Not answered:	47	73.44%	-

Total answered: 17

Question 32

Were you satisfied with the Building Code Commission process?



Frequency table

Choices	Absolute frequency	Relative frequency	Adjusted relative frequency
Yes	3	4.69%	100%
Sum:	3	4.69%	100%
Not answered:	61	95.31%	-

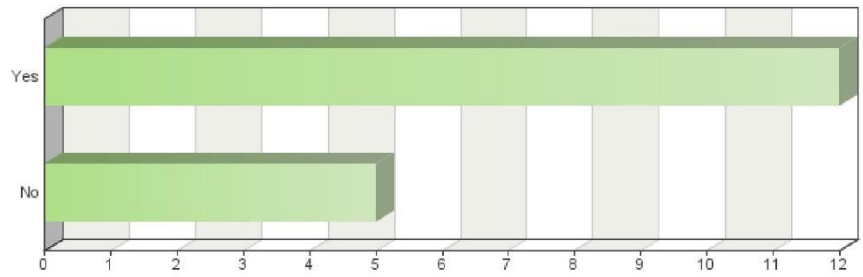
Total answered: 3

Question 33

Can you please explain why you were not satisfied with the Building Code Commission process?

Question 34

Are changes or improvements necessary to improve your ability to incorporate innovative design and alternative solutions under the building code?



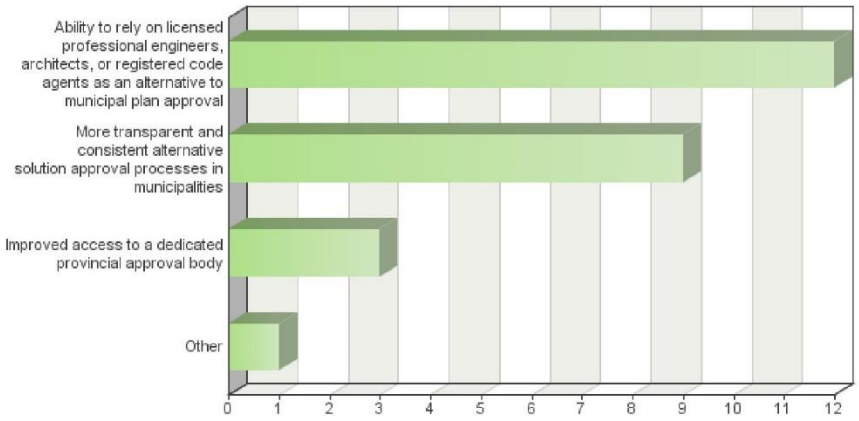
Frequency table

Choices	Absolute frequency	Relative frequency	Adjusted relative frequency
Yes	12	18.75%	70.59%
No	5	7.81%	29.41%
Sum:	17	26.56%	100%
Not answered:	47	73.44%	-

Total answered: 17

Question 35

What change or improvement in Building approval processes do you think would be most effective in enabling more innovation in design and construction in Ontario



Frequency table

Choices	Absolute frequency	Relative frequency by choice	Relative frequency	Adjusted relative frequency
Ability to rely on licensed professional engineers, architects, or registered code agents as an alternative to municipal plan approval	12	48%	18.75%	100%
More transparent and consistent alternative solution approval processes in municipalities	9	36%	14.06%	75%
Improved access to a dedicated provincial approval body	3	12%	4.69%	25%
Other	1	4%	1.56%	8.33%
Sum:	25	100%	-	-
Not answered:	52	-	81.25%	-

Total answered: 12

Last choice text input
Managerial Descretion

Question 36

What would you say is the most critical area for improvement in terms of building approvals (1 being a low priority, to 5 being a top priority)

Numeric cell (row 2, column 2)

Average:	4.47	**Minimum:**	1
Maximum:	5	**Total answered:**	17

Numeric cell (row 3, column 2)

Average:	4.06	**Minimum:**	1
Maximum:	5	**Total answered:**	17

Numeric cell (row 4, column 2)

Average:	2.88	**Minimum:**	1
Maximum:	5	**Total answered:**	17

Numeric cell (row 5, column 2)

Average:	2.41	**Minimum:**	1
Maximum:	4	**Total answered:**	17

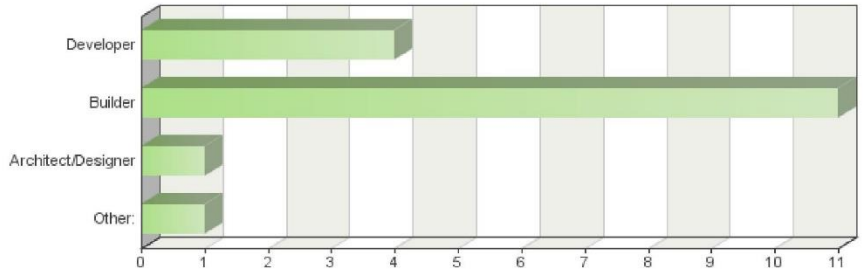
Question 37

Are there any final thoughts and/or comments that you wish to add?

Text input
limit municipalitie's "applicable law" to delay the applicant and process; create process that would allow concurrent review of building permit applications prior to registrations of plans of subdivision
The process is onerous and slow in Toronto. It always appears that our applications represent too much work and effort for staff. Conversely, the difference between Toronto and Collingwood is breathtaking. Collingwood wants your business, Toronto does not.
This survey seems to be weighted to the Permit stage of the process and it is everything that happens before that is the problem. Unreasonable, rigid and then changing requirements of planners, historical and archaeological, neighbours, and others.
Although you may have previously requested member input up to this point I am happy to participate in open oral discussions on this topic. I am an advocate of "voice of reason " and "managerial discretion" . I have a passion for this industry and would be willing to help.

Question 38

Which of the following best describes your occupation:



Frequency table

Choices	Absolute frequency	Relative frequency	Adjusted relative frequency
Developer	4	6.25%	23.53%
Builder	11	17.19%	64.71%
Architect/Designer	1	1.56%	5.88%
Other:	1	1.56%	5.88%
Sum:	17	26.56%	100%
Not answered:	47	73.44%	-

Total answered: 17

Last choice text input
Builder /developer

Appendix D: Aggregate Costs of the Approval Process

This section of the report uses an example of a mid-sized residential developer building single family homes in the GTA as this would represent a typical development for a number of RESCON members. The example breaks down the aggregate costs for construction such as land, labour, and materials.

It is important to clarify the fact that when we are discussing land values we are referring to land that is designated and properly serviced for new ground-related housing. Some planners and economists have suggested that the GTA has an adequate supply of viable land for development that will meet current and future needs (Neptis Foundation[30]). However, much of the land that has been designated for residential use is not serviced and, in many cases, has not gone through the appropriate planning approvals such as subdivision approval. Therefore, there is only a limited quantity of land that is readily available for development. With a limited supply of developable land and pressures from government and consumers, the price of land has increased, as illustrated by increases in the price of serviced lots.[31]

In 2015, RealNet reported that the demand for both low-rise and high-rise homes in the GTA has remained steady year over year. The sale of land has remained relatively stable, averaging $812,345 per acre for vacant, low density development, while medium density or townhouse development sites were $1,834,818 per acre. Ontario's provincial land transfer tax varies according to the sale price of the land, and the City of Toronto has added a land transfer tax in addition to the provincial land transfer tax. In this example, based on an acre of vacant low density land, fees can range from $12,722 for land which is purchased outside of Toronto to $24,694 for land which is purchased in the city.[32]

The majority of the developers who were surveyed were building low density housing on vacant land, and we assume that an acre of vacant serviced residential land could be developed at a density of between 6 to 10 units. For the purpose of this report, we have assumed 8 low density units per acre with an average sale price of $900,000 per unit.

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[30] Neptis Foundation. *Is Ontario's land plan driving housing prices higher?* 2016.
[31] Amborski. *Affordable Housing and Land Supply Issues in the Greater Toronto Area (GTA),* Centre for Urban Research and Land Development, 2016.
[32] RealNet. *Construction Costs Guide 2015.*

Construction Costs

Similar to land costs, construction costs have been steadily increasing over the years. The Altus Group[33] measures construction costs in the major census metropolitan areas for all types of residential, commercial, and industrial buildings. In our example, we have used the category "Wood-Framed Residential: Single-Family Residential with Unfinished Basement" from the most recent Altus Construction Guide reports, and "Speculative Basic Quality" for previous years. Altus's guide only outlines construction as "hard" costs and does not include "soft" costs such as property taxes, land servicing, and architectural and engineering fees.

Figure 11:
Price Index of Apartment and Non-Residential Building Construction

Year	Construction price for single family with unfinished basement (speculative basic quality) per sq. ft.	% Change year-over-year
2011	$85-105	-
2012	$75-105	-11.76-0%
2013	$80-110	4.76-6.67%
2014	$80-120	0-9.09%
2015	$90-120	0-12.5%
2016	$90-180	0-50%
2017	$105-200	11.11-16.67%

Using the 2017 increase of 11.11-16.67% year over year, this would equate to an increase of about 0.93-1.39% for all single-family residential construction costs per month. For a single-detached dwelling, Altus reports that the average construction costs in the GTA would range anywhere between $105 - $200 per square foot[34] and a 3,000 square foot house would have an

[33] Altus Group. *Altus Group's Construction Cost Guide*.
[34] Altus Group. *Canadian Cost Guide 2017.*

overall cost ranging from $315,000 to $600,000. Every month of delay would add an extra $4,375.00 to $5,555.56.00 per month per unit.

Total Costs for Developers

Figure 11 outlines the total costs that a developer would need to pay for every additional month of delays in this hypothetical scenario.

Figure 12:
Total Costs of Delays for Developers

	Costs of Delays	Source
Construction Costs	$105-200/ sq. ft * 3,000 sq. ft. = $315,000-$600,000 in total * 11.16 - 16.67% inflation costs $2,916.38 - $8,335.00 per month/unit	Altus Group – 2015 Construction Guide & Stats
Site Plan Application Re-submission Fee	$521.88 - $660.10 per month	Fees range depending on municipality
Financial Loans	$2,805.34 per month/unit	MCAP GTA Residential Land Value CMHC – Greater Financing Choice for New Construction
Total costs per month per unit	$6,243.59- $11,800.44	

In this scenario, depending on where the residential development is located every month of delays would result in an extra $6,243.59 to $11,800.44 per unit. By having specific fixed timelines, a developer can estimate how long the building approval process would take and price their inventory accordingly. Otherwise, unknown timelines would lead to additional costs which may be passed onto the consumer.

Construction Loans

Since development projects require a large amount of upfront capital, it is rare that a developer and/or builder would have sufficient capital readily available. Consequently, they would need to obtain a construction loan. In our original example, a construction loan for a low-rise residential project with 8 units per acre may cost $4,204,723 for the entire project, which we would assume

is about 70% [35] of the total project costs of the residential construction (including construction costs and soft costs such as management, planning, and marketing fees).

In this example, we also make the assumption that the interest rate of the loan is 6.405% per annum and construction of this project would take roughly 2 years to complete. [36]

Construction Interest = (Total Project Costs x Loan to Value) x (Interest Rate) x Year

= ($6,006,747 x 70%) x (6.405%) x 2 years

= $538,625 over 2 years

= $269,312.50 per annum for entire construction project

Therefore delays on construction would result in $2,805.34 in additional interest that would need to be paid per month per unit.

[35] Pro-Forma 101 Part Two: What will it cost to build the project?
[36] Pro-Forma 101 Part Three: How much money will a project make for the developer?

Appendix E: Recommendation 1 - Streamlining "Applicable Law" Approvals Implementation Strategy

Short-Term:

1. Municipal-Industry Working Group for Site Plan Control

One of the more challenging aspects of obtaining applicable approvals was obtaining municipal Site Plan Control approval. We suggest creating a small municipal-industry working group to set out new transparency and time frame details for Site Plan Control.

Members of the Municipality-Industry Working Group would include but not be limited to:

- Chief Building Officials
- Professional planners working in municipal settings and in the development industry
- OBOA

2. Voluntary-based Pilot Project for Site Plan Control Timeframes

Based upon the discussions and recommendations of the municipal-industry working group, select municipalities would publish what they consider to be a complete Site Plan Control application. This would include items such as the types of drawings or additional studies that may be required, an online map outlining areas that are subject to Site Plan Control, and a statement of what the timeframes for that application would be. In this pilot project, municipalities would be required to publish, on a monthly basis, how frequently and quickly they receive and approve different types of Site Plan Control applications (i.e. minor, routine, or complex). These figures would allow a municipality to benchmark their status and track their performance month-over-month.

The experience drawn from this pilot project could form the basis for potential provincial guidelines, but could also set precedents for what other applicable government agencies should do.

Long-Term:

3. Expand full transparency and timeframes to all building regulatory agencies

This municipal-industry Site Plan Control working group would recommend details such as the possibility of updating timeframes in provincial legislation, like the *Planning Act*, to reflect the average time that a municipality is allotted to make a decision about an application to the provincial government. From there, the provincial government would then mandate that all other relevant ministries (Municipal Affairs and Housing, Natural Resources, etc.) would mandate compliance with transparency and timeframe requirements for all types of permit applications such as ones done for municipal Site Plan Control.

Appendix F: British Columbia's Letters of Assurance and Certified Professionals Program

British Columbia's Certified Professional Application consists of two main documents – one that confirms that the owner authorizes the CP to coordinate the project, and another document that confirms the completion of code coordination. The Certified Professional Building Permit Application Form identifies who is in charge (the CP), where the work will take place, and what exactly will be done.

The Letters of Assurance are mandatory legal documents that set out and clearly identify the responsibilities of key professionals in a building project. However, Letters of Assurance are not required for all projects (typically smaller construction projects). The purpose of these letters is to create accountability for each party that is involved in the construction process. For projects that require Letters of Assurance, an applicant needs to complete three main letters before filing a building permit.

The first letter (Schedule A) identifies the owner and the coordinating registered professional for the project. Individuals who have been identified in Schedule A must agree and acknowledge that they will coordinate the design work and field reviews from registered professionals who may be needed for a project. The second letter (Schedule B) pertains to the design and field review components that are required for the project and specifies which key professionals are responsible for specific areas. Both Schedule A and B must be submitted prior to the issuance of a building permit. The final letter is broken up into two components, Schedule C-A and Schedule C-B. Schedule C-A is a letter that is submitted after the completion of the project, but before an occupancy permit is issued. This letter outlines whether or not the individual who signed the first document fulfilled their obligations for coordinating field review and whether or not it meets and or exceeds the requirements of British Columbia's *Building Code*. Schedule C-B documents whether or not the individual who was identified in Schedule B fulfilled their obligations with regards to field review.[37]

Having CPs in place not only streamlines the building application process, but clearly identifies the roles and responsibilities of key individuals. Accountability is placed on the owner, certified

[37] Province of British Columbia. *Guide to the Letters of Assurance in the B.C, Building Code 2006*, 2006.

professional, and registered professional of record. Building officials, while they review building plans and monitor the construction process for compliance, also make decisions on what the British Columbia Building Code means and how it should be applied to communities.

In the case of British Columbia, setting out clear roles and responsibilities fills in any accountability gaps and ensures that all key professionals know what roles and responsibilities are required of the other professionals. With clear coordination and understanding, building permit issuance is more streamlined and trust is placed in the hands of the owner and coordinating registered professional to ensure that everyone has fulfilled their duties.

SCHEDULE A

Forming Part of Sentence 2.2.7.2.(1), Div. C of the British Columbia Building Code

Building Permit No.
(for *authority having jurisdiction's* use)

CONFIRMATION OF COMMITMENT BY OWNER AND COORDINATING REGISTERED PROFESSIONAL

Notes: (i) This letter must be submitted before issuance of a *building* permit.
(ii) This letter is endorsed by: Architectural Institute of B.C., Association of Professional Engineers and Geoscientists of B.C., Building Officials' Association of B.C., and Union of B.C. Municipalities.
(iii) In this letter the words in italics have the same meaning as in the British Columbia Building Code.

Re: Design and *Field Review* of Construction
by a *Coordinating Registered Professional*

To: The *authority having jurisdiction*

Name of Jurisdiction (Print)

Re: Name of Project (Print)

Address of Project (Print)

(Professional's Seal and Signature)

Date

The undersigned has retained _____ as a *coordinating registered professional* to coordinate the design work and *field reviews* of the *registered professionals of record* required[1] for this project. The *coordinating registered professional* shall coordinate the design work and *field reviews* of the *registered professionals of record* required for the project in order to ascertain that the design will substantially comply with the B.C. Building Code and other applicable enactments respecting safety and that the construction of the project will substantially comply with the B.C. Building Code and other applicable enactments respecting safety, not including the construction safety aspects.

"*field reviews*" are defined in the British Columbia Building Code to mean those reviews of the work
(a) at a project site of a development to which a *building* permit relates, and
(b) where applicable, at fabrication locations where *building* components are fabricated for use at the project site
that a *registered professional of record* in his or her professional discretion considers necessary to ascertain whether the work substantially complies in all material respects with the plans and supporting documents prepared by the *registered professional of record* for which the *building* permit is issued.

The owner and the *coordinating registered professional* have read Subsection 2.2.7, Division C of the British Columbia Building Code. The owner and the *coordinating registered professional* each acknowledge their responsibility to notify the addressee of this letter of the date the *coordinating registered professional* ceases to be retained by the owner before the date the *coordinating registered professional* ceases to be retained or, if that is not possible, then as soon as possible. The *coordinating registered professional* acknowledges the responsibility to notify the addressee of this letter of the date a *registered professional of record* ceases to be retained before the date the *registered professional of record* ceases to be retained or, if that is not possible, then as soon as possible.

[1]It is the responsibility of the *coordinating registered professional* to ascertain which *registered professionals of record* are required, and to initial each Schedule B.

Schedule A – *Continued*

_____
Building Permit No.
(for *authority having jurisdiction's* use)

_____
Project Address

The owner and the *coordinating registered professional* understand that where the *coordinating registered professional* or a *registered professional of record* ceases to be retained at any time during construction, work on the above project will cease until such time as

(a) a new *coordinating registered professional* or *registered professional of record*, as the case may be, is retained, and
(b) a new letter in the form set out in Schedule A or in the form set out in Schedules B, as the case may be, is filed with the *authority having jurisdiction*.

The undersigned *coordinating registered professional* certifies that he or she is a *registered professional* as defined in the British Columbia Building Code, and agrees to coordinate the design work and *field reviews* of the *registered professionals of record* required for the project as outlined in the attached Schedules B including coordination and integration of functional testing of fire protection and life safety systems. (See A-2.2.7.3 in Appendix A.)

Coordinating Registered Professional

_____
Coordinating Registered Professional's Name (Print)

_____
Address (Print)

_____

_____
Phone No.

(Professional's Seal and Signature)

_____
Date

Owner

_____
Owner's Name (Print)

_____
Address (Print)

_____

_____
Name of Agent or Signing Officer if applicable (Print)

_____
Date

_____
Owner's or Owner's appointed agent's Signature. (If owner is a corporation the signature of a signing officer must be given here. If the signature is that of the agent, a copy of the document that appoints the agent must be attached.)

(If the *Coordinating Registered Professional* is a member of a firm, complete the following.)

I am a member of the firm_____
and I sign this letter on behalf of the firm. (Print name of firm)

This letter must be signed by the owner or the owner's appointed agent and by the *coordinating registered professional*. An agent's letter of appointment must be attached. If the owner is a corporation, the letter must be signed by a signing officer of the corporation and the signing officer must set forth his or her position in the corporation.

The British Columbia Building Code defines a *registered professional* to mean

(a) a person who is registered or licensed to practise as an architect under the Architects Act, or
(b) a person who is registered or licensed to practise as a professional engineer under the Engineers and Geoscientists Act.

SCHEDULE B

Forming Part of Subsection 2.2.7, Div. C of the British Columbia Building Code

_____
Building Permit No.
(for *authority having jurisdiction's* use)

ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEW

Notes: (i) This letter must be submitted prior to the commencement of construction activities of the components identified below. A separate letter must be submitted by each *registered professional of record*.
(ii) This letter is endorsed by: Architectural Institute of B.C., Association of Professional Engineers and Geoscientists of B.C., Building Officials' Association of B.C., and Union of B.C. Municipalities.
(iii) In this letter the words in italics have the same meaning as in the British Columbia Building Code.

To: The *authority having jurisdiction*

_____
Name of Jurisdiction (Print)

Re: _____
Name of Project (Print)

_____
Address of Project (Print)

The undersigned hereby gives assurance that the design of the
(Initial those of the items listed below that apply to this *registered professional of record*. All the disciplines will not necessarily be employed on every project.)

_____ **ARCHITECTURAL**
_____ **STRUCTURAL**
_____ **MECHANICAL**
_____ **PLUMBING**
_____ **FIRE SUPPRESSION SYSTEMS**
_____ **ELECTRICAL**
_____ **GEOTECHNICAL — temporary**
_____ **GEOTECHNICAL — permanent**

(Professional's Seal and Signature)

_____
Date

components of the plans and supporting documents prepared by this *registered professional of record* in support of the application for the *building* permit as outlined below substantially comply with the B.C. Building Code and other applicable enactments respecting safety except for construction safety aspects.

The undersigned hereby undertakes to be responsible for *field reviews* of the above referenced components during construction, as indicated on the "SUMMARY OF DESIGN AND FIELD REVIEW REQUIREMENTS" below.

_____
CRP's Initials

Schedule B - *Continued*

Building Permit No.
(for *authority having jurisdiction's* use)

Project Address

Discipline

The undersigned also undertakes to notify the *authority having jurisdiction* in writing as soon as possible if the undersigned's contract for *field review* is terminated at any time during construction.

I certify that I am a *registered professional* as defined in the British Columbia Building Code.

Registered Professional of Record's Name (Print)

Address (Print)

Phone No.

(Professional's Seal and Signature)

Date

(If the *Registered Professional of Record* is a member of a firm, complete the following.)

I am a member of the firm _____ (Print name of firm)
and I sign this letter on behalf of the firm.

Note: The above letter must be signed by a *registered professional of record*, who is a *registered professional* . The British Columbia Building Code defines a *registered professional* to mean

(a) a person who is registered or licensed to practise as an architect under the Architects Act, or
(b) a person who is registered or licensed to practise as a professional engineer under the Engineers and Geoscientists Act.

CRP's Initials

Schedule B - *Continued*

_____
Building Permit No.
(for *authority having jurisdiction's* use)

_____
Project Address

_____
Discipline

SUMMARY OF DESIGN AND FIELD REVIEW REQUIREMENTS

(Initial applicable discipline below and cross out and initial only those items not applicable to the project.)

_____ ARCHITECTURAL

1.1 Fire resisting assemblies
1.2 *Fire separations* and their continuity
1.3 *Closures*, including tightness and operation
1.4 Egress systems, including *access to exit* within *suites* and *floor areas*
1.5 Performance and physical safety features (guardrails, handrails, etc.)
1.6 Structural capacity of architectural components, including anchorage and seismic restraint
1.7 Sound control
1.8 Landscaping, screening and site grading
1.9 Provisions for fire fighting access
1.10 *Access* requirements for *persons with disabilities*
1.11 Elevating devices
1.12 Functional testing of architecturally related fire emergency systems and devices
1.13 Development Permit and conditions therein
1.14 Interior signage, including acceptable materials, dimensions and locations
1.15 Review of all applicable shop drawings
1.16 Interior and exterior finishes
1.17 Dampproofing and/or waterproofing of walls and slabs below *grade*
1.18 Roofing and flashings
1.19 Wall cladding systems
1.20 Condensation control and cavity ventilation
1.21 Exterior glazing
1.22 Integration of building envelope components
1.23 Environmental separation requirements (Part 5)
1.24 Building Envelope, Part 10/ASHRAE or NECB Requirements

(Professional's Seal and Signature)

_____
Date

_____ STRUCTURAL

2.1 Structural capacity of structural components of the *building*, including anchorage and seismic restraint
2.2 Structural aspects of *deep foundations*
2.3 Review of all applicable shop drawings
2.4 Structural aspects of unbonded post-tensioned concrete design and construction

_____ MECHANICAL

3.1 HVAC systems and devices, including high *building* requirements where applicable
3.2 *Fire dampers* at required *fire separations*
3.3 Continuity of *fire separations* at HVAC penetrations
3.4 Functional testing of mechanically related fire emergency systems and devices
3.5 Maintenance manuals for mechanical systems
3.6 Structural capacity of mechanical components, including anchorage and seismic restraint
3.7 Review of all applicable shop drawings
3.8 Mechanical Systems, Part 10/ASHRAE or NECB Requirements

_____
CRP's Initials

Schedule B - *Continued*

_____
Building Permit No.
(for *authority having jurisdiction's* use)

_____
Project Address

_____
Discipline

_____ PLUMBING

4.1 Roof *drainage systems*
4.2 Site and foundation *drainage systems*
4.3 *Plumbing systems* and devices
4.4 Continuity of *fire separations* at plumbing penetrations
4.5 Functional testing of plumbing related fire emergency systems and devices
4.6 Maintenance manuals for *plumbing systems*
4.7 Structural capacity of plumbing components, including anchorage and seismic restraint
4.8 Review of all applicable shop drawings
4.9 Plumbing Systems, Part 10/ASHRAE or NECB Requirements

_____ FIRE SUPPRESSION SYSTEMS

5.1 Suppression system classification for type of *occupancy*
5.2 Design coverage, including concealed or special areas
5.3 Compatibility and location of electrical supervision, ancillary alarm and control devices
5.4 Evaluation of the capacity of city (municipal) water supply versus system demands and domestic demand, including pumping devices where necessary
5.5 Qualification of welder, quality of welds and material
5.6 Review of all applicable shop drawings
5.7 Acceptance testing for "Contractor's Material and Test Certificate" as per NFPA Standards
5.8 Maintenance program and manual for suppression systems
5.9 Structural capacity of sprinkler components, including anchorage and seismic restraint
5.10 For partial systems — confirm sprinklers are installed in all areas where required
5.11 Fire Department connections and hydrant locations
5.12 Fire hose standpipes
5.13 Freeze protection measures for fire suppression systems
5.14 Functional testing of fire suppression systems and devices

_____ ELECTRICAL

6.1 Electrical systems and devices, including high building requirements where applicable
6.2 Continuity of *fire separations* at electrical penetrations
6.3 Functional testing of electrical related fire emergency systems and devices
6.4 Electrical systems and devices maintenance manuals
6.5 Structural capacity of electrical components, including anchorage and seismic restraint
6.6 Clearances from *buildings* of all electrical utility equipment
6.7 Fire protection of wiring for emergency systems
6.8 Review of all applicable shop drawings
6.9 Electrical Systems, Part 10/ASHRAE or NECB requirements

_____ GEOTECHNICAL — Temporary

7.1 *Excavation*
7.2 Shoring
7.3 Underpinning
7.4 Temporary construction dewatering

_____ GEOTECHNICAL — Permanent

8.1 Bearing capacity of the soil
8.2 Geotechnical aspects of deep *foundations*
8.3 Compaction of engineered fill
8.4 Structural considerations of soil, including slope stability and seismic loading
8.5 Backfill
8.6 Permanent dewatering
8.7 Permanent underpinning

(Professional's Seal and Signature)

_____
Date

_____
CRP's Initials

SCHEDULE C-A

Forming Part of Subsection 2.2.7, Division C of the British Columbia Building Code

Building Permit No.
(for *authority having jurisdiction*'s use)

ASSURANCE OF COORDINATION OF PROFESSIONAL FIELD REVIEW

Notes: (i) This letter must be submitted after completion of the project but before the *occupancy* permit is issued, or a final inspection is made, by the *authority having jurisdiction*.
(ii) This letter is endorsed by: Architectural Institute of BC, Association of Professional Engineers and Geoscientists of BC, Building Officials' Association of BC, and Union of BC Municipalities.
(iii) In this letter the words in italics have the same meaning as in the British Columbia Building Code.

To: The *authority having jurisdiction*

Name of Jurisdiction (Print)

Re: Name of Project (Print)

Address of Project (Print)

Legal Description of Project (Print)

(The *coordinating registered professional* shall complete the following:)

Name (Print)

Address (Print) sc

Phone No.

(Professional's Seal and Signature)

Date

I hereby give assurance that

(a) I have fulfilled my obligations for coordination of field review of the registered professionals required for the project as outlined in Subsection 2.2.7, Division C of the British Columbia Building Code and in the previously submitted Schedule A, "CONFIRMATION OF COMMITMENT BY OWNER AND BY COORDINATING REGISTERED PROFESSIONAL,"
(b) I have coordinated the functional testing of the fire protection and life safety systems to ascertain that they substantially comply in all material respects with
  (i) the applicable requirements of the BC Building Code and other applicable enactments respecting safety, not including construction safety aspects, and
  (ii) the plans and supporting documents submitted in support of the application for the building permit,
(c) I am a registered professional as defined in the British Columbia Building Code.

(If the *registered professional* is a member of a firm, complete the following:)

I am a member of the firm
and I sign this letter on behalf of the firm. (Print name of firm)

Note: The above letter must be signed by a *coordinating registered professional*, who is also a *registered professional*. The British Columbia Building Code defines a *registered professional* to mean

(a) a person who is registered or licensed to practise as an architect under the Architects Act, or
(b) a person who is registered or licensed to practise as a professional engineer under the Engineers and Geoscientists Act.

CRP's Initials

SCHEDULE C-B

Forming Part of Subsection 2.2.7, Division C of the British Columbia Building Code

_____
Building Permit No.
(for *authority having jurisdiction*'s use)

ASSURANCE OF PROFESSIONAL FIELD REVIEW AND COMPLIANCE

Notes: (i) This letter must be submitted after completion of the project but prior to final inspection by the *authority having jurisdiction*. A separate letter must be submitted by each *registered professional of record*.
(ii) This letter is endorsed by: Architectural Institute of B.C., Association of Professional Engineers and Geoscientists of B.C., Building Officials' Association of B.C., and Union of B.C. Municipalities.
(iii) In this letter the words in italics have the same meaning as in the British Columbia Building Code.

To: The *authority having jurisdiction*

_____
Name of Jurisdiction (Print)

Re: _____
Discipline (e.g. Architectural, etc.) (Print)

_____
Name of Project (Print)

_____
Address of Project (Print)

(Each *registered professional of record* shall complete the following:)

_____
Name (Print)

_____
Address (Print)

_____

_____
Phone No.

(Professional's Seal and Signature)

_____
Date

I hereby give assurance that

(a) I have fulfilled my obligations for *field review* as outlined in Subsection 2.2.7, Division C of the British Columbia Building Code and in the previously submitted Schedule B, "ASSURANCE OF PROFESSIONAL DESIGN AND COMMITMENT FOR FIELD REVIEW", and
(b) those components of the project opposite my initials in Schedule B substantially comply in all material respects with
  (i) the applicable requirements of the B.C. Building Code and other applicable enactments respecting safety, not including construction safety aspects, and
  (ii) the plans and supporting documents submitted in support of the application for the *building* permit,
(c) I am a *registered professional of record* as defined in the British Columbia Building Code.

(If the *registered professional of record* is a member of a firm, complete the following:)

I am a member of the firm _____
and I sign this letter on behalf of the firm. (Print name of firm)

Note: The above letter must be signed by a *registered professional of record,* who is a *registered professional* . The British Columbia Building Code defines a *registered professional* to mean
(a) a person who is registered or licensed to practise as an architect under the Architects Act, or
(b) a person who is registered or licensed to practise as a professional engineer under the Engineers and Geoscientists Act.

_____
CRP's Initials

Appendix G: Chicago's Structural Peer Review Program

The Department of Buildings in Chicago, Illinois, allows the use of structural peer review to help streamline the building permit process. The purpose of the structural peer review is to provide independent review to ensure that the design of the structure is not only in compliance with the local building codes but also with all other related structural codes and technical standards. Chicago's Department of Buildings clearly outlines the fact that this program is strictly voluntary, and there is no additional fee to use this program beyond the normal building permit fee. [38]

The structural peer review is performed by a qualified independent peer review engineer who has been retained by, or on behalf of, the property owner. The peer review must be conducted by an Illinois licensed Structural Engineer with demonstrated expertise in the class of building that they are reviewing. This peer review engineer must also provide proof to the Department of Buildings that they have successfully completed a Structural Peer Review Code Seminar that has been approved by the Commissioner.

In order to use the Structural Peer Review Program, the owner must first notify the Department of Buildings that they are submitting a building permit application under the Structural Peer Review Program. This is generally done via email. Once the email has been received, staff will confirm whether or not the peer reviewer selected is eligible to review the proposed project. Once accepted, the peer reviewer performs the structural peer review, working with the owner and the Licensed Engineer of Record to resolve all issues that were raised during the review. The peer reviewer will then prepare and submit a Final Peer Review Report to the Department of Buildings. This submission of the Final Peer Review Report must also include the structural drawings that were prepared by the Licensed Engineer of Record, the permit application, and other documents which are required by the Chicago Building Code.

It is generally understood that the submission of building applications under the Structural Peer Review Program will not eliminate the need for staff at the Department of Buildings to examine the structural design. Rather, staff will review the report that the peer reviewer has submitted and

[38] City of Chicago. *Structural Peer Review Program.* Department of Buildings, 2017.

may request meetings with the peer reviewer and the Licensed Engineer of Record. However, the Department of Buildings retains the right to conduct a complete review of the building design on a random basis, but these reviews should not exceed 20% of the total number of projects which were submitted through the Structural Peer Review Program on an annual basis. [39]

In this program, builders have the option to fast track their building permit application and have an external structural peer review. These peer reviewers have not only gone through extensive education and training, but they have also been vetted by the Department of Buildings.

[39] City of Chicago. *Structural Peer Review Program Outline,* Department of Buildings, 2013.

Appendix H: Recommendation 2 - Placing Greater Reliance on Design Professionals Implementation Strategy

We have developed a brief implementation strategy which includes short-term and long-term implementation components.

Short-Term:

1. Municipal-Industry Working/Steering Group

The purpose of this working/steering group is to get all interested parties (outlined below) and provide guidance on how these pilot projects would work in select municipalities. They would be responsible for which municipality would volunteer to have this "Coordination & Peer Review Program" incorporated into their local municipal building department.

It is imperative to have all stakeholders in this group, from both the public and industry, so that all perspectives are shared and understood. In addition to providing input on the pilot projects, this working/steering group would help draft the details of the new permit class, Ontario's version of British Columbia's Letters of Assurance, and suggest ways in which a Peer Reviewer would be qualified for a certain type of project. The results of the working/steering group's work would help lay the foundation for legislative changes in the *Building Code Act* and *Building Code*.

Interested Stakeholders would include, but not be limited to:

- Interested municipalities (e.g. Toronto; Burlington; Oshawa, etc.);
- Professional Organizations: Ontario Building Officials Association (OBOA), Engineers Architects and Building Officials (EBAO), and professionals (Ontario Architects Association, Professional Engineers Ontario), Building Industry and Land Development (BILD); and
- Provincial Ministries: Building and Development Branch (Ministry of Municipal Affairs and Housing).

2. Pilot Project in Select Municipalities

Establish a new building permit class under the existing *Building Code Act* and *Building Code* provisions, called, for example, "Coordination & Peer Review Program".

The new permit class "Coordination & Peer Review Program" would include both new roles of Design Coordinator and Peer Reviewer. This new and voluntary permit class would be based on *Building Code Act* Section 7(1) (a). Documentation (letters of assurance) would also be added to the *Building Code* and would outline specific duties for which the Design Coordinator would be responsible. This documentation would be based on *Building Code Act* Section 7(1) (b) and (f).

Applicants who choose the "Coordination & Peer Review Program" option would need to contact municipal building departments stating that they would be submitting an application via the "Coordination & Peer Review Program" with their desired Peer Review and Design Coordinator contact included in the email. Municipal building departments would need to respond if the Peer Reviewer selected is appropriate for the proposed project. Once a Peer Reviewer is selected they would need to work with the Design Coordinator and review the proposed building plans to ensure compliance with *Building Code* as well as with other applicable laws. The Peer Reviewer would need to submit a report that contains the following items demonstrating how the review was performed and outlining the following:

- List of codes and standards used in the structural design of the project;
- Review and identify structural design, including loads and performance;
- Basis for structural design (alternative solutions) that are not specified directly in applicable codes and standards, but should include reports by other consultants such as geotechnical reports;
- Verify that existing conditions at the site have been investigated and deemed appropriate and that the design proposed conforms with these conditions;
- Verify the structural and architectural drawings for the proposed project; and
- Contain a certification statement signed by the Peer Reviewer with signature, name, and professional license/certificate number

The Peer Reviewer would need to submit the completed report to the Design Coordinator who would then file the report, with the building permit application and "Coordination & Peer Review Program" documents, to be reviewed by municipal building staff.

Municipal building inspectors would then perform their required reviews, checks and duties as they see fit based upon findings from the report from the Design Coordinator and Peer Reviewer as per the *Ontario Building Code* Division C Part 1.3.5.3 (3)

Long-Term:

3. Building Code Act and Building Code changes

The members of the working/steering group would also help review the *Building Code Act* and the *Building Code* and identify necessary changes that would need to be made to support the role of Design Coordinators and Peer Reviewers. Legislation which regulates relevant professions (Architects Act and Professional Engineers Act) would also need to be reviewed and amended as necessary to support these new roles.

Appendix I: Recommendation 3 – Greater Use of E-Permitting Implementation Strategy

Under Section 1.9.1.1. (d) of the *Building Code Act*, all building departments in Ontario have a building reserve fund. Building permit fees are collected and recorded to cover any future enforcement and administrative costs as deferred revenue. Each year, every municipality that has a building reserve fund must produce a report that outlines key elements such as direct and indirect costs, fees collected in that calendar year, the open and ending balance, and funds that were transferred in or out. Section 7(4) of the *Building Code Act* requires municipalities to prepare such a report.

These building reserve funds are intended to be used when construction activity is low to help balance the cost of staff and other administrative charges. Recently, however, these building reserve funds have grown considerably, with jurisdictions such as the City of Ottawa posting a surplus of $35 million in their reserve fund.[40]. We suggest using this building code reserve fund to help pay for the initial costs of implementing the electronic permitting system.

Short-Term:

1. Municipal-Industry Working Group to Develop e-permitting standards

The purpose of this working group is to have representatives of all interested parties (outlined below) provide guidance on the ways in which these pilot projects would be implemented and evaluated in select municipalities. It would be the responsibility of this working group to find municipalities that would volunteer to implement an e-permitting platform in various departments such as planning and building departments.

Together, both the working group and the interested municipalities would work on developing common standards (open source) for an e-permitting system that would have capabilities such as:

- Online permit application and payment
- Online submisson of building drawings – to link with BIM or CAD drawings
- Electronic provision of comments to applicants
- Online tracking of application status by applicants

[40] CBC News. *City's $35M building code reserve fund draws questions*, November 2015.

- Use of a common platform to allow the sharing of relevant permit application information by municipalities with various internal municipal departments and with other external applicable law agencies – conservation authorities, Ministry of Transportation, Tarion etc.

Interested Stakeholders would include, but not be limited to:

- OBOA to provide a bridge to the broader community of building departments
- Municipalities such as: Toronto, Mississauga, Markham all of whom have recent e-permitting experience
- Interested professional designers
- Ministry of Municipal Affairs and Housing
- Software consultants/experts/vendors

2. Pilot Project in Select Municipalities

The working group would need to identify which municipalities would be participating in this e-permitting and what platform these municipalities would need to implement. Once that is established, the next task would be to implement this software onto the computers of municipal staff workers. There would need to be training sessions held to educate municipal staff on how to use this program and how to trouble-shoot. Once municipal staff are comfortable and are able to use the e-permitting tool, the next step would be to announce and educate applicants they have the ability to submit their application online and how to go about doing so.

Long-Term

3. Provincial standards for e-permitting system

Based on the recommendations put forth by the working group and the experiences from the select municipalities, there would be a need to implement such a system at the provincial level since many of the applicable laws are provincial agencies or ministries.

Appendix J: Singapore's CORENET E-Submission System

Prior to the restructuring of Singapore's building permit system, individuals in the construction industry needed to complete and submit multiple application forms which had different requirements. Sometimes the same information would need to be submitted to different agencies. In order to simplify this process, the Construction and Real Estate Network (CORENET) appointed Singapore's Building and Construction Authority (BCA) to lead the design and implementation of a new electronic platform. This work included re-evaluating performance standards and creating a baseline for all CAD drawings.

In 2001, CORENET launched their electronic submission system. This allowed qualified persons (QPs) to submit applications and drawings through the internet if they wanted to. In doing so, it allowed the multiple and various agencies to access and to share the information from a single point.

Many industry leaders and practitioners raised concerns about lacking the technological resources and skills to operate the electronic filing system. To address this concern, leading up to the launch and during the initial phases of this electronic system, BCA staff, as well as the software provider, set up help desks and call centers to quickly resolve any issues which applicants may have encountered. In some cases, electronic kiosks were set up in private construction firms, and IT support was also provided if needed.

Two years after implementing the electronic permitting system, in 2003, Singapore made electronic submission of building plans and drawings mandatory. Before any construction is to begin, a QP must obtain written permission from the Urban Redevelopment Authority (URA). The required drawings and design, building plans and required fees must then be filed electronically through CORENET's e-Submission System. The BCA takes no longer than 7 working days to approve the design if all drawings and designs are correct.[41] According to the World Bank, the entire building permit process from start to finish takes roughly 24 working days, from obtaining initial approvals from URA to obtaining a completion certificate at the end.

[41] Building Construction Authority. *Building Plan Approval, Singapore, 2016.*

Due to the e-Submission System, Singapore ranks first as one of the best places to obtain a development permit.

Once CORENET's system was fully integrated, a survey was sent to industry professionals asking for their opinions about the e-submission system. The survey results revealed that everyone enjoyed the cost savings from using CORENET: 72% of the respondents noted savings on printing costs, 81% of the respondents noted savings in transportation, and 65% of the respondents noted that the system saved them time.[42]

Another interesting feature of Singapore's permitting system is its coordination of design. Along with electronically submitting plans to the CORENET system, a developer and supervising qualified person (professional engineer) must appoint key individuals as coordinators in development projects and building works to coordinate and submit documents to the appropriate departments and agencies. Their Building Code Act also specifically states who cannot be appointed by a developer or builder. Individuals who are registered site supervisors cannot be a partner, officer, or employee of the developer, builder or their associates. The Building Act also states that the number of individuals who need to be identified depends on the value of the project. Therefore, it uses labour resources efficiently.

One of the key factors in the success of Singapore's electronic permitting system is the involvement of local government. Singapore's BCA not only set up help desks at their local offices, but at private sector firms to provide IT help. By providing the industry with the training and technical support that was needed for implementation, Singapore's building approval system set the standard for government and industry helping each other to achieve a better outcome.

[42] The World Bank. *Good Practices for Construction Regulation and Enforcement Reform,* 2013.

References

Advisory Council on Economic Growth. "Unlocking Innovation to Drive Scale and Growth." (2017). Retrieved from: http://www.budget.gc.ca/aceg-ccce/pdf/innovation-2-eng.pdf

Amborski, D. (2016). Affordable Housing and the Land Supply Issue in Greater Toronto. Centre for Urban Research and Land Development. Policy Commentary. Retrieved from: http://www.ryerson.ca/content/dam/cur/pdfs/policycommentaries/CUR%20Policy%20Report_Affordable%20Housing%20and%20Land%20Supply%20Issues%20in%20the%20GTA_2016.11.04.pdf

Amborski, D., Clayton, F. "The Need to Make Housing Affordability a Primary Goal in Regional Planning for the Greater Golden Horseshoe." Submission to the Ontario Growth Secretariat, Ministry of Municipal Affairs and Housing, in Response to the Proposed Growth Plan for the Greater Golden Horseshoe, 2016. Centre for Urban Research and Land Development. (2016). Retrieved from: http://www.ryerson.ca/content/dam/cur/pdfs/policycommentaries/CUR%20Policy%20Report%20_%20Response%20to%20Proposed%20Growth%20Plan_2016.pdf

Altus Group. "Construction Cost Guide 2015." (2015). Retrieved from: http://www.altusgroup.com/media/4099/costguide_2015_web.pdf

Association of Professional Engineers and Geoscientists of British Columbia (APGEG) "Letters of Assurance in the B.C. Building Code and Due Diligence." Bulletin K:BCBC. (2010). Retrieved from https://www.apeg.bc.ca/getmedia/72b2ce6e-62be-4deb-92e2-088c72ee6751/APEGBC-Bulletin_K_Letters-of-Insurance-in-BC-Building-Code.pdf.aspx

Belanger, P.R. "The Elliot Lake Inquiry." (2014). Retrieved from: https://www.attorneygeneral.jus.gov.on.ca/inquiries/elliotlake/index.html

Building Advisory Council. "Building Advisory Council 2012 Annual Report." (2012).

Building Construction Authority (BCA). "Guide on Construction of Industrial Developments in Singapore." (2010). Retrieved from: https://www.bca.gov.sg/publications/others/guide_on_construction_of_industrial_developments_in_singapore.pdf

Building Construction Authority (BCA). "Building Plan Approval." (2016). Retrieved from: https://www.bca.gov.sg/BuildingPlan/building_plan_submission.html

Bengston, D.N. & Gregersen, H.M. "Technical Change in the Forest-Based Sector." *Journal of Business Administration*, 20 (1, 2), 187-212. (1991/1992).

Burchfield, M. “Is Ontario’s land plan driving housing prices higher?” Neptis Foundation. (2016). Retrieved from: http://www.neptis.org/latest/news/ontarios-land-plan-driving-housing-prices-higher

Bousfield Inc. & Altus Group. “A Review of the Site Plan Approval Process in Ontario: For the Ontario Association of Architects.” (2013).

CAIT Climate Change Data Explorer. Historical Emissions. Washington, D.C.: World Resources Institute. (2017). Retrieved from http://cait.wri.org/historical/Country%20GHG%20Emissions

Canadian GeoThermal Exchange Coalition. “What is the cost of a Geoexchange System?” (n.d.). Retrieved from: http://www.geo-exchange.ca/en/cost_savings_questions_faq8.php

Canadian Mortgage and Housing Corporation (CMHC). “CMHC Improvement: Greater Financing Choice for New Construction and Home Improvements.” (2017). Retrieved from: https://www.cmhc-schl.gc.ca/en/hoficlincl/moloin/hopr/hopr_006.cfm

CERF. “Action Plan: An Enhanced Building Technology Evaluation Process- The Partnership for Building Innovation: Enhancing the Process for Implementing New Technology (CERF Report #96-5021-02).” Washington, DC: Civil Engineering Research Foundation. (1996a).

CERF. “Deploying Design and Construction Innovation: Symposium on Engineering and Construction for Sustainable Development in the 21st Century.” Washington, DC: Civil Engineering Research Foundation. (1996b).

City of Chicago. “Structural Peer Review Program.” Department of Building. (n.d.) Retrieved from: https://www.cityofchicago.org/city/en/depts/bldgs/supp_info/structural_peer_reviewprogramoverview.html

City of Chicago. “Structural Peer Review Program Outline. Department of Building.” (2013). Retrieved from: https://www.cityofchicago.org/content/dam/city/depts/bldgs/general/Structural/829SPRProgramProcessOutline.pdf

City of London. “Full Plans Application.” Department of the Built Environment. (2016). Retrieved from: https://www.cityoflondon.gov.uk/services/environment-and-planning/building-control/Documents/Full-Plans-Application.pdf

City of Markham. “E-Plan Implementation – Summary Report.” (2013).

City of Mississauga. “Incomplete Building Permit Applications: Processing Times to Status Report Letters.” (2013). Retrieved from: http://www6.mississauga.ca/onlinemaps/planbldg/BinaryFilesMiscell/Building/2013Week29.pdf

City of Ottawa. “Guaranteed Application Timeline Initiative (GATI).” (2012).

City of San Francisco. “Permit & Project Tracking System.” Planning Department. (2014). Retrieved from: http://sf-planning.org/permit-project-tracking-system

City of Toronto. “Staff Report Action Required – Building Permit Review Times & Enforcement of the Sign By-Law.” (2013). Retrieved from: http://www.toronto.ca/legdocs/mmis/2013/pg/bgrd/backgroundfile-61207.pdf

City of Toronto. “2016 Property Tax Rates.” (n.d.). Retrieved from: http://www1.toronto.ca/wps/portal/contentonly?vgnextoid=25d4d85a42c74510VgnVCM10000071d60f89RCRD&vgnextchannel=63b0ff0e43db1410VgnVCM10000071d60f89RCRD

City of Vancouver. “Certification of Professionals By-Law No. 6203.” (2014) Retrieved from: http://former.vancouver.ca/bylaws/6203c.PDF

City of Vaughan. “Property Tax and Assessment.” (n.d.). Retrieved from: https://www.vaughan.ca/services/property_tax_and_assessment/Pages/default.aspx

City of Windsor. “Historical Tax Rates.” (n.d.). Retrieved from: http://www.citywindsor.ca/cityhall/Taxes--and-Assessment-/Pages/Historical-Tax-Rates.aspx

Constructco. “Design, Plan, Build.” (2016). Image retrieved from http://www.constructco.ca/residential/design-plan-build/

Cheshire, P. C., Nathan, M., & Overman, H. G. “Urban economics and urban policy: Challenging conventional policy wisdom.” Edward Elgar Publishing. (2014).

Consumer Council of Canada. “Residential Intensification: The Impact on Consumers.” Toronto. (2015).

Clayton, M., Fudge, P., & Thompson, J. “Automated plan review for building code compliance using BIM.” In EG-ICE 2013 Workshop, Vienna, Austria. (2013).

Dibner, D.R., & Lemer, A.C. “The Role of Public Agencies in Fostering New Technology in Innovation Building.” Washington, DC: National Academy of Sciences Press. (1992).

Doumani, R., Forna, P. "Ontario Planning Legislation & Commentary, Toronto, Ontario." LexisNexis. (2011).

Downs, A. "The Advisory Commission on Regulatory Barriers to Affordable Housing: Its Behaviour and Accomplishments." Housing Policy Debate 2 (4): 1095–1137. (1991).

Environment Canada. "Greenhouse Gas Emissions by Province and Territory." (2016). Retrieved from https://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=en&n=18F3BB9C-1

Farrow, D.L. "Ontario Building Code Concepts and Code Analysis." (n.d.). Retrieved from: http://www.oaa.on.ca/oaamedia/documents/Ontario%20Building%20Code%20-%20Concepts%20and%20Code%20Analysis.pdf

Field, C.G.& Ventre, F.T. "Local Regulation of Building: Agencies, Codes, and Politics." *In The Municipal Year Book*. Washington, DC: International City Management Association. (1971).

Friedman, L.F. (2015). "The IT industry is out-innovating all others by a longshot." Business Insider. (May 29, 2015). Retrieved from: http://www.businessinsider.com/most-innovative-industries-2015-5

Ganong, P., & Shoag, D. "Why Has Regional Income Convergence in the U.S. Declined?" (March 28, 2013). HKS Working Paper No. RWP12-028. Available at SSRN: https://ssrn.com/abstract=2081216 or http://dx.doi.org/10.2139/ssrn.2081216

Glaeser, E. L., Gyourko, J., & Saks, R. "Why is Manhattan so expensive? Regulation and the rise in housing prices." The Journal of Law and Economics, 48(2), 331-369. (2005).

Green, K.P., Filipowicz, J., Lafleur, S., Herzog, I. "The Impact of Land-Use Regulation on Housing Supply in Canada." The Fraser Institute. (2016). Retrieved from: https://www.fraserinstitute.org/studies/impact-of-land-use-regulation-on-housing-supply-in-canada

Government of Ontario. Report of the Committee on Uniform Building Standards for Ontario. Queen's Printer for Ontario, reprinted by CodeNews Consulting Corporation. (1969). Retrieved from: http://www.codenews.ca/docs/CarruthersReport1969p.pdf

Government of Ontario. Planning Act (Section 41.1 – Site Plan Control Area). Queen's Printer for Ontario: Toronto. (1990). Retrieved from: https://www.ontario.ca/laws/statute/90p13

Government of Ontario. Ontario Heritage Act, 1980, Chapter 337. Queen's Printer for Ontario: Toronto. (2009). Retrived from: https://www.ontario.ca/laws/statute/90o18#BK42

Government of Ontario. Conservation Authorities Act: R.S.O. 1990 Chapter 27. Queen's Printer of Ontario. Toronto. (2011). Retrived from: https://www.ontario.ca/laws/statute/90c27#BK27

Government of Ontario. Ontario Building Code (Section 1.4.1.3 – Definition of Applicable Law). Queen's Printer for Ontario: Toronto. (2012). Retrieved from: https://www.ontario.ca/laws/regulation/120332

Government of Ontario. Ontario Building Code (Division C, Part 2 – Alternative Solutions). Queen's Printer for Ontario: Toronto. (2012). Retrieved from: https://www.ontario.ca/laws/regulation/120332

Government of Ontario. Building Code Act, 1992, S.O. 1992 Chapter 23. Queen's Printer for Ontario: Toronto. (2014). Retrieved from: https://www.ontario.ca/laws/statute/92b23

Government of Ontario. O. Reg. 332/12: Building Code. Queen's Printer for Ontario: Toronto. (2015). Retrieved from: https://www.ontario.ca/laws/regulation/120332

Heal, A.J. "Recent Case Law and Ontario's New Building Code." (2007). Retrieved from: http://www.blaney.com/sites/default/files/Recent-Case-Law-Ontario-New-Building_Code_nov07.pdf

Heal, A.J., Gregoire, L.P. "Municipal Liability: Building Construction and Inspection Issues." (n.d.) Retrieved from: http://www.blaney.com/sites/default/files/article_building-construction.pdf

Hills Jr, R. M., & Schleicher, D. "Planning an Affordable City." Iowa L. Rev., 101, 91. (2015).

Hsieh, C. T., & Moretti, E. "Why do cities matter? Local growth and aggregate growth (No. w21154)." National Bureau of Economic Research. (2015).

Kean, T.H. & Ashley, T.L. "Not in My Back Yard: Removing Barriers to Affordable Housing. Final report." Washington, DC: U.S. Department of Housing and Urban Development. Advisory Commission on Regulatory Barriers to Affordable Housing. (1991).

Koebel, C.T., Papadakis, M., Hudson, E., & Cavell, M. "The diffusion of innovation in the residential building industry." Virginia Center for Housing Research. (2003).

Kulatunga, U., Amaratunga, R.D.G., & Haigh, R.P. "Construction innovation: a literature review on current research." (2006).

Landwehr, C. E. "A building code for building code: putting what we know works to work." In Proceedings of the 29th Annual Computer Security Applications Conference (pp. 139-147). ACM. (December, 2013).

Listokin, D. and Hattis, D.B. "Building Codes and Housing." *Cityscape: A Journal of Policy Development and Research* 8(1) 21-67. (2005).

Mascarin, J., Levitt, J. Annotated Ontario Building Code Act, Toronto, Ontario, LexisNexis. (2015)

Maisel, S.J. "Housebuilding in Transition." Berkeley: University of California Press. (1953).

Meacham, B., Bowen, R., Traw, J., & Moore, A. "Performance-based building regulation: current situation and future needs." Building Research & Information, 33(2), 91-106. (2005).

Ministry of Economic Development and Growth. "Backgrounder: Support for the Red Tape Challenge." Queen's Printer for Ontario. (2016). Retrieved from: https://news.ontario.ca/medg/en/2016/03/support-for-the-red-tape-challenge.html

Ministry of Municipal Affairs and Housing. Ontario Building Code. Queen's Printer for Ontario: Toronto. (2006) Retrieved from: http://www.mah.gov.on.ca/Page7393.aspx

Ministry of Municipal Affairs and Housing. Citizen's Guide - 8 - Building Permits. (2015). Retrieved from http://www.mah.gov.on.ca/Page1753.aspx

Ministry of the Environment and Climate Change. Climate Change Action Plan. Queen's Printer for Ontario: Toronto. (2016).

Muth, R. F. *Cities and Housing*. Chicago: University of Chicago Press. (1968).

Muth, R.F. & Wetzler, E. "The Effect of Constraints on House Costs." *Journal of Urban Economics*, pp. 3 (1), 57–67. (1976).

NAHB Research Center. Advanced Housing Technology Program, Phase I. Upper Marlboro, MD: Prepared for Oak Ridge National Laboratory. (1991).

Noam, E. M. "The interaction of building codes and housing prices." Real Estate Economics, 10(4), 394-404. (1982).

Peer, S. "Streamlining the Building Permit Process." Journal of Management in Engineering, pp. 2(4), 265-271. (1986).

Province of British Columbia. Guide to the Letters of Assurance in the B.C. Building Code 2006. Building & Safety Standard Branch. Ministry of Public Safety & Solicitor General. (2006). Retrieved from http://www.bccodes.ca/2006GuideLoA.pdf

Rich, S. San Francisco Unveils One-Stop Business License and Permit Shop. Govtech. (2013). Retrieved from: http://www.govtech.com/e-government/San-Francisco-Unveils-One-Stop-Business-License-and-Permit-Shop.html

Rogers, E. M., Medina, U. E., Rivera, M. A., & Wiley, C. J. "Complex adaptive systems and the diffusion of innovations." *The Innovation Journal: The Public Sector Innovation Journal*, pp. 10(3), 1-26. (2005).

Seidel, S. "Housing Costs and Government Regulations: Confronting the Regulatory Maze" (New Brunswick, NJ: Center for Urban Policy Research, Rutgers, the State University of New Jersey, (1978); K. Rosen and L. Katz, "Growth Management and Land Use Controls: The San Francisco Bay Area Experience." Journal of Urban and Real Estate Economics, 9, 321-344. (1974).

Simmons, K., Czajkowski, J., & Done, J. M. "Economic Effectiveness of Implementing a Statewide Building Code: The Case of Florida." (2016).

Shahi, K., McCabe, B.Y., Shahi, A., DeBarardis, P., Lyall, R. Evaluation of Tall Building Construction Permitting Process in Ontario. Leadership in Sustainable Infrastructure. Annual Conference – Vancouver. May 31 – June 3, 2017. (2017)

Short, D.E. The New Ontario Building Code Act: An Overview. Fasken Martineau. Construction Canada. (2005). Retrieved from: http://www.fasken.com/files/Publication/e1311a93-863f-46aa-9f2f-8a87eb2f8491/Presentation/PublicationAttachment/004b4ce6-0385-4539-a068-9978a69dc3dc/CONSTRUCTCANADA_DSHORT_05.PDF

Slaughter, E.S. "'Rapid' Innovation and the Integration of Components: comparison of User and Manufacturer Innovations Through a Study of Residential Construction." Unpublished PhD thesis, Massachusetts Institute of Technology, Cambridge, MA. (1991).

Tatum, C.B. "Process of Innovation in Construction Firms." Journal of Construction Engineering and Management, 113(4), 648-663. (1987).

The Planning Partnership. Canada-Wide Development Process Survey Report for REALPac. (2012). Retrieved from: http://c.ymcdn.com/sites/www.realpac.ca/resource/resmgr/research/rp_canada_wide_fin_sp_05.pdf

Toronto Real Estate Board (TREB). Market Watch: Sales Up and Listings Down in February. (2017). Retrieved from: http://www.trebhome.com/market_news/market_watch/

U.S. National Commission on Urban Problems. Building the American City. Washington, DC: U.S. Government Printing Office. (1969).

University of British Columbia. Structure of UBC's tall wood building now complete. UBC News. (2016). Retrieved from: http://news.ubc.ca/2016/09/15/structure-of-ubcs-tall-wood-building-now-complete/

Ventre, F.T. "Social Control of Technological Innovation: the Regulation of Building Technology." Unpublished PhD Thesis, Massachusetts Institute of Technology, Cambridge, MA. (1973).

Wien Master Builder. Vienna City Administration. (n.d.). Retrieved from: https://www.wien.gv.at/english/eap-en/master-builder.html

World Bank. Good practices for construction regulation and enforcement reform: guidelines for reformers. Investment climate. Washington DC: World Bank. (2013). Retrieved from: http://documents.worldbank.org/curated/en/662881468170967367/Good-practices-for-construction-regulation-and-enforcement-reform-guidelines-for-reformers

World Bank. "Doing Business 2016: Measuring Regulatory Quality and Efficiency." Washington, DC: World Bank. DOI: 10.1596/978-1-4648-0667-4. License: Creative Commons Attribution CC BY 3.0 IGO. (2016).

World Bank. "Doing Business: Ease of Doing Business in Canada." (2016). Retrieved from: http://www.doingbusiness.org/data/exploreeconomies/canada

World Bank. "Doing Business: Dealing with Construction Permits." (2016). Retrieved from: http://www.doingbusiness.org/data/exploretopics/dealing-with-construction-permits