

**Review of obligations under
Letters of Undertaking**

Building Code Act

Professional Engineers Act

Architects Act

Final Report

Submitted to the

Building Advisory Committee

30 September 2011



in partnership with



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1 Introduction

1.1 Overview

The building industry in Nova Scotia is a major contributor to the Province's economy and vitality. Residential (including multi-occupancy), industrial, commercial and institutional construction constitutes a \$1.3 billion industry¹. It employs more than 25,000 tradespeople². It supports a substantial industry in professional services (architects, engineers, interior designers, and others). It generally maintains a record of high quality that justifies public confidence. However, the relatively small number of buildings that do exhibit poor construction standards and require significant remediation remain a cause for concern.

The *Building Code Act*³ established the authority for the use of Letters of Undertaking by architects and engineers in Nova Scotia in 1996 under the Nova Scotia Building Code Regulations⁴. The Act and Regulations are administered and enforced by municipal building officials. The objective of the Letters of Undertaking is to assist municipal building officials in determining that a design conforms to the minimum standards of the Nova Scotia Building Code and that the construction conforms to the design and as certified by the architect and engineers of record.

In the case of single family dwellings building inspection is primarily undertaken by municipal officials; this is not the case for non-Part 9 buildings⁵. Because of the expertise required and because knowledge of the specific building design is needed, inspection becomes the primary responsibility of engineers and architects. The vehicle that creates this authority and responsibility is the Letter of Undertaking.

In 2008 the Province commissioned the *Homeowner Protection Report* to examine what protective measures are in place to ensure that a quality product is built and purchased by new homeowners. The Report noted that these measures are by and large satisfactory for single family dwellings. It is in the condominium sector and, more specifically, non-Part 9 buildings that a number of more serious problems arise, particularly water penetration due to envelope failure.

The same report noted, however, that there were some concerns with the effectiveness of the field review processes undertaken by engineers and/or architects in fulfilling their obligations under the Letters of Undertaking. In summary, two major concerns were raised:

1. How well does the Letters of Undertaking process itself provide assurance that the design and construction of buildings meets the requirements of the building code?
2. How well is the Letters of Undertaking process being implemented, how is compliance with the process being overseen, how are failures to comply

¹ Statistics Canada, Building Permits, July 2011

² Construction Looking Forward: Atlantic Canada, Construction Sector Council, March 2011

³ Building Code Act Chapter 46 of the revised statutes of Nova Scotia, as amended.

⁴ In this report these are referenced as the Act and the Regulations respectively.

⁵ For further explanation of the distinction, please see section 2.1.3 below.

being identified and reported, what actions are being taken in the event of non-compliance, what disciplinary or other corrective procedures are in place?

Other instances of concern with Letters of Undertaking have been raised by building officials, and relate to non-compliance (and potentially abuse of the system) by professionals, and difficulties with the complaint, disciplinary and remediation processes.

1.2 Objectives of this Review

The Review of obligations under Letters of Undertaking, Building Code Act and the Professional Design Associations and related regulations was undertaken at the request of the Nova Scotia Building Advisory Committee, which established a Steering Committee to guide the project. The Building Advisory Committee is established by the Building Code Act and reports to the Minister of Labour and Advanced Education. Its duties include “provide the Minister with such advice and assistance concerning [the] Act and the regulations...”

The terms of reference and membership of the Steering Committee are contained in Appendix I. The review team was asked, in consultation with key government and other stakeholders:

- To review the use of Letters of Undertaking in the design and construction of buildings in Nova Scotia;
- To determine if they meet the goals of the intended mandate;
- To identify regulatory or other improvements which could be made to ensure compliance of design and construction in the Province and thereby assure consumers that their investment is protected;
- To ensure there is a robust and transparent process to identify and prosecute offenders under the Building Code Act and/or to take reasonable disciplinary action under their respective professional bodies’ legislative mandates.

1.3 The Consultation Process

Over the period of two months, the consultant team met with key stakeholders and informants in the industry to obtain information, advice and guidance. Engineers Nova Scotia, the Nova Scotia Association of Architects, Halifax Regional Municipality, The Department of Labour and Advanced Education and the Nova Scotia Building Officials Association organized meetings of building officials

Interviews were held with other individuals in the construction industry, lawyers, representatives from Dalhousie University’s Schools of Architecture and Engineering, and knowledgeable individuals in other provinces.

The table below provides an indication of the groups of informants that were interviewed, and also of the number of participants.

Informants	Number
Architects	5
Engineers	11
Interior Designers	3
Professional Organization Administrators	3
Deans of Academic Institutions	3
Building Officials	14
Technical safety inspectors	6
Municipal Administrators	2
Risk managers, Insurers	3
Lawyers	2
Officials in BC, Ontario	3
Builders and others	2
Total	57

The team met with the Building Advisory Committee on a number of occasions to review findings and discuss issues.

1.4 Acknowledgement

The consultants would like to acknowledge the considerable assistance of the many representatives of industry, government, the professions, educators, administrators and others who willingly provided both their time and their information, without which the preparation of this report would not have been possible.

The valuable contributions of these representatives are recognized. The survey methodology assured confidentiality of all individual contributions. While the consultants have endeavoured to accurately summarize all informants' input, the opinions expressed in this report are those of the consultants alone, except where otherwise specifically attributed.

The consultants would especially like to thank the steering committee members, who have assisted throughout this project with guidance and facilitation. Membership of this committee and its terms of reference are summarized in Appendix I.

2 Background Information

2.1 Roles and Responsibilities During Construction

2.1.1 Owners and Developers

An owner or developer of buildings that are the subject of this report is usually either a company that focuses on construction of buildings that it intends to own and manage for the long term, on a rental or lease basis, or is a company that intends to sell units as condominiums.

In all cases the developer might hire an experienced general contractor or project manager to construct the building on its behalf or, it may organize, supervise and manage the construction process itself through a combination of trade contractors and own-forces labour. The construction management capacity and experience of the developer has a large impact on the integrity of the finished building.⁶

The usual practice for condominiums is to incorporate a separate company for each project thereby insulating the parent company from project specific risks. The relationship between the home purchaser (unit owner), the condominium corporation and the developer is much more complex than in other large (non-Part 9) building projects.

2.1.2 Architects and Engineers

A typical building design team is led by the Prime Consultant who is most often an architect or engineer and who is responsible for the overall design of the building and prepares the detailed specifications and drawings for the “architectural” components. The roof and wall assembly details that ensure a building will be watertight fall within the architect’s area of responsibility. The architect or the developer will hire engineers to prepare the drawings and specifications for the structural, civil, electrical and mechanical elements of the building.

2.1.3 Municipal Officials

The municipal building authority will review the plans of Part 9 buildings⁷ for conformance to the Code before issuing a building permit and inspect them during

⁶ “Canada’s Construction System – the context for model codes” published by the Canadian Commission on Building and Fire Codes, is attached as Appendix VI and provides useful general overview of the construction process, its participants, and the regulatory environment.

⁷ The National Building Code (and therefore the Nova Scotia Building Code) establishes materials, design and construction standards for a wide variety of types of buildings. Generally speaking, relatively small buildings that can employ proven, conventional wood frame building techniques are regulated in Part 9 of the Code. Larger, more complex buildings are not covered by the prescriptive construction methods in Part 9 of the Code. They are governed by standards set out in the other sections of the Code. Architects and engineers interpret and apply the Code’s performance requirements within the context of each specific design.

construction during the course of periodic inspections. They do not check the quality of construction and do not provide guarantees to the owner. Their role is limited to Code compliance although they will point out obvious and visible defects in workmanship where they compromise Code compliance. They do not perform any testing or removal of materials during the course of inspection although they have the authority to require that this be done.

The municipal building official cannot verify every aspect of a building under construction even if it is readily apparent. A great deal of reliance is placed on the industry's knowledge of materials and techniques. This general level of reliance does not seem to be seriously misplaced, as the incidence of serious problems with small buildings appears to be relatively low.

With larger, more complex non-Part 9 buildings municipal building authorities review the designs of architects and engineers for compliance to the minimum standards of fire, life safety and accessibility. Their inspection of these buildings is also limited to these components. An overall building design is comprised of both the prescriptive fundamentals of code and the anticipated performance of the materials and assembly selected by the designers. Municipal authorities therefore state, with some justification, that they do not have the resources and expertise to assess whether or not construction will perform to the expectation of design and further that this is the role of the designer as set out in their legal undertakings.

The Building Code Regulations place the responsibility on architects and/or engineers for ensuring that the construction of non-Part 9 buildings meets the Code through a mechanism that requires "Letters of Undertaking".

2.2 The Letter of Undertaking

2.2.1 Source

The templates for the Letters of Undertaking are found in the Regulations to the Nova Scotia Building Act. Their content was first established by the Nova Scotia Building Advisory Committee approximately fifteen years ago. Similar practices are adopted in most jurisdictions in Canada; some provinces use the term "Letters of Assurance".

Where required⁸, the owner is responsible for the "Letter of Undertaking Confirmation of Commitment by Owner", Schedule A to the Regulations. The prime consultant (see 2.1.2 above) is responsible for the "Field Review of Construction Inspection Commitment Certificate", Schedule A-1. Professionals provide similar field review commitment certificates for the applicable⁹ design requirements, Schedules A-2 through A-8. At completion of the project each architect or engineer hired by the owner or prime consultant must sign a "Certification of Field Review of Construction", Schedule A-9.

⁸ As identified in Regulations Section 1.4.1.4 and Sections 2.1.1.5 to 2.1.1.8.

⁹ As identified in the Letter of Undertaking Schedule A: Building; Structural; Mechanical; Electrical; Fire Suppression; Geotechnical; Plumbing.

2.2.2 Objectives

The Building Code, in Section 2.2.1.1 of the Regulations, states that:

“The architect or professional engineer who undertakes to design a building or part thereof shall do so in accordance with their respective statutes and bylaws to ensure that the design meets the intent of the Code.”

Section 2.2.1.2 of the Regulations then goes on to state with respect to Field Review of Construction that:

“The architect or professional engineer who undertakes the....Review shall do so in accordance with their respective statutes and bylaws, and shall

(1) inspect the building at intervals appropriate to the stage of construction to determine general compliance with design referred to in the section noted above

(2) coordinate with the authority having jurisdiction the review of changes to the design documents for consistency with the intent of the plans and specifications.

(3) file with the authority having jurisdiction the Certification of Field Review of Construction.”

The Letters are intended to identify responsibilities for aspects of the code by the professionals and designers. The focus of this investigation was on the process of review and inspection that is currently the practice and where deficiencies in that practice lie.

2.3 Architects and Engineers – Statutory obligations

The obligations of architects and engineers with respect to review during construction and the confirmation of this expected by the building officials are set out in the Building Code Act and are noted in the preceding sections. The Architects and Engineering Acts and Regulations do not reference these obligations.

Engineers Nova Scotia has prepared two documents for guidance to their members with respect to their obligations during the construction process. These are entitled:

- Guidelines for Professional Engineers Regarding Field Review of Construction Certificates – October 1997¹⁰
- Guideline on Construction Supervision - undated

These documents provide engineers with a good overview of their obligations and what is intended by the Letters of Undertaking. They do not, however, describe the extent to which an engineer should conduct reviews during construction and are clear that the reviews are intended to determine that *“...the constructed works are in general compliance with the design drawings.”* Nor is it clear how these documents are used or disseminated.

¹⁰ A copy of this document is attached as Appendix III to this report.

2.4 Field Review Process

The NS Building Code Regulations provide a definition of 'Field Review of Construction':

"means, and is limited to, the inspection of the construction work at intervals appropriate to the stage of construction, at the project site and where applicable at the fabrication location where building components are fabricated for use at the project site, that the designer in their professional discretion consider necessary to determine general compliance with the design drawings accepted by the authority having jurisdiction and all revisions thereto."

The Regulations then state:

"'Field Review of Construction' does not include the coordination, quality and performance of construction."

2.5 Role of Municipalities with respect to the Building Code Act and the LOU

Section 2.4 of the Regulations describes the obligations of the authority having jurisdiction. They are charged with the administration and enforcement of the Building Code Act and Regulations and have the power to issue notices and orders to require remedial or other measures that are required to meet the regulations. These can include issuing stop work orders and orders directing compliance with the relevant provision of the Code.

They may also direct that the owner carry out tests of materials, equipment, devices, construction methods, structural assemblies or foundation conditions to show that they meet the regulatory requirements.

In effect, the authorities having jurisdiction have a wide range of powers and authority. The reliance on the Letters of Undertaking is not absolute, however they are entitled to expect that the undertakings given have been honoured, as they are in the vast majority of cases. As noted in the previous section, their role is limited to enforcement and administration of the Building Code Act, Regulations and the Code itself.

2.6 Role of the Owner with respect to the Act and the LOU

When applying for a building permit, in applicable situations, the owner must submit a letter of undertaking to the authority having jurisdiction for the Field Review of Construction.

The Regulations place other obligations on the owner as well including an obligation to ensure that an architect or professional engineer or both, as required, be appointed to undertake the design of a building which requires Field Review of Construction. The owner must also ensure that the authority having jurisdiction is notified at various stages of the construction process in order to inspect for compliance with the Code.

The purpose of these letters of undertaking is to provide assurance to the municipal building inspectors that complex buildings are being designed to the Code and that appropriately qualified professionals will inspect during construction. Reliance is placed

on the professionalism of the architects and engineers. Field review of construction is defined in the Building Code Regulations as:

“the inspection of the construction work at intervals appropriate to the stage of construction, at the project site ... that the designer in their professional discretion consider necessary to determine general compliance with the design drawings ... Field Review of Construction does not include the coordination, quality and performance of construction.”

2.7 Inspection for Construction Quality

It is important to reinforce what the current inspection regime is intended to achieve. Municipal Inspections are for Building Code compliance. Building officials are not expected to inspect for construction quality.

Field Reviews, carried out by professionals, are primarily inspections for design compliance although most architects will comment on construction quality, particularly workmanship with respect to various building elements. Architects will often require mock-ups of window installations, for example, in an effort to ensure weather tight construction work.

The design professionals are not on the site daily and do not see everything that is going on even when they are there. Typically the architect or engineer would be on site once a week or once every other week to inspect whether the work that is readily visible generally complies with the intent of the design, to assess progress and deal with issues that have arisen. They are not typically hired or paid sufficiently to monitor construction integrity on a continuous basis.

Only the owner is in a position to demand and inspect for construction quality. For all buildings, the owner's, developer's or contractors' own supervision is an important part of the quality control process. Typically, owners/developers/builders and general contractors will have a site supervisor to review all the work to ensure it is done and in accordance with the drawings and specifications. Similarly, trade contractors should have a job foreman who oversees the work of their own employees and sub-trades. The real control over quality of construction and the way in which important details are executed lies with the owner, developer and the contractor who manage the trades and oversee construction activity.

In the 1990's a serious and well known problem arose in British Columbia from water penetration in a large number of condominiums. This increased the focus on an emerging industry of "building envelope inspectors" comprised of people with architectural, engineering or construction trades experience who diagnose water penetration problems and supervise and inspect both remedial and new construction to ensure that the design details are appropriate and the work is being done properly. Since the time the role has become more formally defined, with recognition by professional associations and specific skills requirements becoming commonplace in several jurisdictions.

Building envelope inspectors provide a much higher intensity and frequency of inspection services than either the architects or the municipal inspectors provide,

amounting to continuous inspection in some cases. Some of these inspectors are independent and some are employees of an architectural or engineering firm. This type of building envelope inspection service is available in Nova Scotia but they are few in number and focus on large commercial buildings. This aspect of construction inspection is explored further in the Findings and Recommendations section of this Report.

At the end of the day, however, there is no way to absolutely guarantee construction quality or that there will never be 'leaky' condominiums. What can be achieved, however, is a more transparent process, with accountability and compliance by the appropriate parties involved in the process.

3 Findings and Recommendations

3.1 Overview

A broad range of stakeholders were interviewed, and considering both this and the complexity of the subject matter, it is not surprising that there was a wide variation in observations and findings. There were, however, more comments in common than there were differences of opinion. In order to clarify, classify and prioritize the findings we have divided them into a range of topics, or themes.

One of the most significant general observations is that there is no universal problem with Letters of Undertaking. On the whole the system works quite well. Owners, developers, construction firms, professionals, and building officials generally work to complement one another in their respective roles, share accountability, and normally deliver a quality product.

The challenge of course is that this does not always happen. These interactions and shared responsibilities rely in part on the knowledge and integrity of the participants. The nature and complexity of building methods and the construction industry leaves opportunities for uninformed or unscrupulous participants and is the major cause of the problems that were noted.

Regulatory controls provide a framework for setting common objectives and good practice. They are established to set building standards, detect failures to conform to standards, and provide recourse in the event of such failure. However the success of the industry, and the trust placed in it by consumers, relies very much on the cooperation and good faith of the industry, professionals, and authorities.

As noted in the introduction to this report, the goal is to answer critical questions: How effective is the Letter of Undertaking process – *are there weaknesses in the process itself and how can compliance be improved? Ultimately, the objective is to ensure that the LOU process itself is a positive part of the construction process.*

We have therefore summarized our findings and recommendations into these three groups:

- The LOU process, and how it might be changed and/or improved;
- How compliance with the LOU process could be improved and non-compliance (voluntary and involuntary) be both reduced and dealt with when it occurs;
- Other aspects of the LOU and inspection process that could be enhanced to improve building quality.

We have followed these observations that directly relate to Letters of Undertaking with relevant findings and recommendations in the areas of building quality, warranty, and outcomes monitoring.

Within each of these groups we have made recommendations and suggested responsibilities for implementation within the regulatory authorities and building officials, professional associations, and other organizations.

Note that in the sections that follow, the terms “Letters of Undertaking process” and “LOU” refer to Schedule “A” (Letter of Undertaking Confirmation of Commitment by

Owner) and Schedules “A-1” through “A-9” (Field Reviews by professionals), to the Nova Scotia Building Code Regulations, in their entirety.

3.2 Improving the LOU process

3.2.1 Issues with the LOU process

- a) As noted above, in general the LOU process works. Improvements may be needed, but not wholesale change.
- b) There is evidence that a minority of owners, professionals and even some building officials are not conscientious in following their LOU obligations (possibly because they do not fully understand them). This issue is exacerbated when owners or professionals are from another locale or jurisdiction, or are uninformed. This indicates an underlying issue that the inspections, and other activities that the LOU is intended to summarize, may or may not have taken place, with or without the appropriate level of diligence.
- c) There are many reported cases of inconsistency in application, interpretation and use of LOU’s and the inspection processes that are required. This inconsistency often arises from Building Officials where some projects require all ‘A’ forms, but others of similar complexity do not. Other projects have required ‘A’ forms only when Occupancy Permits are requested without having LOU’s signed at the Permit stage. Interior Designers are sometimes required to submit ‘A’ forms when the permit application is outside the scope of the Building Code Part 9.¹¹ The NS Building Code Regulations do not recognize the legislated scope of the practice of interior design and as such do not permit the filing of LOU’s. These and other inconsistencies have led some observers to lose confidence in the integrity of the LOU process.
- d) The roles and responsibilities of the respective parties (owners, builders, professionals, officials) are not always clear. Relationships among the parties, and one party’s expectations of another, are inconsistent.

3.2.2 Recommendations for the LOU process

- a) In the preamble to the Owners Letter of Undertaking the final phrase should be amended as follows:

*“And Whereas Part 2 of the Regulations made pursuant to the Act, requires that these buildings be inspected at intervals appropriate to **the size and complexity of the design** and the stage of construction to determine general compliance with the design drawings accepted by the authority having jurisdiction and all revisions thereto.”*

Furthermore, on page 2 of the Owners Letter of Undertaking in the section which begins *“I have attached to this Letter of Undertaking”* there should be another box to tick, which requires that the owner provide, in addition to the minimum requirements of the Code, additional areas for field review as the complexity of

¹¹ Particularly Schedule ‘A-2’ in renovation projects where they are the prime consultants. Note that a new LOU is in preparation for Interior Designers for their specific function.

the project may dictate. This would add clarity and certainty to the requirement, and should reduce variability. It will require the owner to agree in advance with the Prime Consultant the appropriate times during the construction process when field review will be undertaken. It will also have the added value of impressing upon owners the importance of the inspection process in ensuring a quality outcome.

Responsibility: The Building Advisory Committee

- b) The Prime Consultant should be required to develop a schedule showing the minimum level of field reviews anticipated by the professional consultant team, and the responsibilities for those reviews. This should be attached to NSBCR Schedule “A-1” submitted by the prime consultant. A suggested model is that adopted by British Columbia, which is Schedule “B” of the Letters of Assurance of the British Columbia Building Code Regulations (see Appendix II for a copy of this document). This requirement should oblige the consultant and owner to discuss and agree upon appropriate points of inspection during construction.

Responsibility: The Building Advisory Committee, in cooperation with Engineers Nova Scotia, the Nova Scotia Architects Association and Interior Designers of Nova Scotia. These associations should include this requirement in their guidelines for professional practice.

- c) There is a need for a clear, concise set of directions that every municipality provides to owners or their representatives at the beginning of the process, when the municipality is first approached about a construction project or building permit. These directions should describe the process that is expected and the undertakings that must be provided by owners and consultants. Every municipality should use the same basic information, although it can be altered to provide local contact information or context.

Responsibility: All parties, under the leadership of the Building Code Coordinator.

- d) There is a considerable need for continuing education of all participants in the LOU process. The purpose of this education is to clarify obligations, and roles within those obligations. Participation in this education should be part of the professional associations’ Continuing Professional Development and the Building Officials’ certification and training process. It would be highly beneficial for this education to be multi-disciplined and inter-disciplinary, to assist with development of a mutual understanding of roles and responsibilities.

Responsibility: Led by the Building Code Coordinator of the Dept. of Labour and Advanced Education, in conjunction with The Nova Scotia Building Officials Association, the NS Building Code Training and Certification Board, and Engineers Nova Scotia, the Nova Scotia Architects Association, and Interior Designers of Nova Scotia.¹²

¹² It was noted that a new legal course for building officials is in development, and this continuing education could be included in the implementation plan for that course. It was also noted that Engineers Nova Scotia are planning to enhance the association’s continuing professional development program, and this education could be an element of that enhancement.

- e) In addition to continuing education, professional associations should prepare and make readily accessible, a guide to the Letters of Undertaking and Field Review process. Engineers Nova Scotia have created such a document, dated 1997. A copy of this document is attached as Appendix III. It is not clear how well the document is disseminated to members or but it is accessible through the associations web site. It is a good start and should be reviewed for currency and put into better circulation. The Nova Scotia Association of Architects should prepare a similar document for its members. An alternative is to take the BC approach¹³ which is a guide prepared jointly by both associations with the involvement of the Building Officials Association, the Union of BC Municipalities and the Building and Safety Standards Branch of the Province of BC. Such an approach would go a long way to raising the level of awareness and importance of the LOU process among all participants.

Responsibility: Engineers Nova Scotia, the Nova Scotia Architects Association, and Interior Designers of Nova Scotia, in conjunction with the Nova Scotia Building Officials Association, and the Department of Labour and Advanced Education in a coordinating role and to ensure continuity of use.

3.3 Improving Compliance with the LOU process

3.3.1 Issues with LOU compliance

- a) There were many anecdotal reports of non-compliance with the LOU process: inspections that have not been performed although the signed schedules have been received; consultants signing outside their apparent areas of competence; schedule A-9 received together with a report of building deficiencies; the known many envelope failures in non-Part 9 multi-occupancy residencies, (not all of which can be attributed to a failure to inspect) etc. However, very few complaints and disciplinary actions have been initiated.
- b) Building officials want to maintain a strong working relationship with professionals, developers, owners and builders. This is, of course, laudable. But for the most part officials are the only participants in the process who are in a position to either reject unacceptable work or file a complaint.
- c) Formal complaints processes for breaches of sound practice or code compliance are onerous, and represent another reason why they are little used.
- d) Professionals often assert that there is insufficient funding in their contracts to support the number and depth of inspections that should take place to meet the objectives of the LOU.

3.3.2 Recommendations for improving LOU compliance

- a) The recommendations of 3.2.2 (a) above should go a long way to improve compliance, particularly by reducing involuntary non-compliance.

¹³ See the Guide to the Letters of Assurance in the B.C. Building Code 2006, Building & Safety Standards Branch, Ministry of Public Safety & Solicitor General, Province of British Columbia, <http://www.housing.gov.bc.ca/building/docs/2006GuideLoA.pdf>

Responsibility: Building Advisory Committee, including monitoring outcomes for improved compliance (see 3.6 below).

- b) Providing a schedule of field reviews in the owners' LOU (see the recommendations under 3.2.2 (b) above) will create visibility to owners on both the importance of such reviews, and their obligations to fund them.

Responsibility: Building Advisory Committee, including monitoring outcomes for improved compliance (see 3.6 below).

- c) Building officials should consistently reject non-compliant deliverables, such as un-sealed documents (where it is clear that a seal is required), signed schedules with deficiencies attached, or schedules signed by unauthorised parties.

Responsibility: The Nova Scotia Building Officials Association. Note also this requirement should be included in the continuing education recommended in 3.2.2 (d) above.

- d) The professional associations should make their complaint processes visible and accessible and, when complaints are filed, the results of the process should be communicated in writing to the complainant. It is in the interests of the associations to have discipline among their memberships. It is noted that Engineers Nova Scotia updated its code of conduct and disciplinary procedures in June 2010, but this is not widely communicated.¹⁴

Responsibility: Engineers Nova Scotia, the Nova Scotia Architects Association, and Interior Designers of Nova Scotia

- e) Building officials must be willing to notify, or file a complaint to, the professional associations where inappropriate action has been taken, such as approving work which does not meet code, particularly when such breaches are repeated.

Responsibility: The Nova Scotia Building Officials Association to coordinate and educate, and potentially the Building Advisory Committee to enforce through changes to regulations.

- f) Professional associations should be willing to accept notification of a breach of good practice or code compliance without the necessity of filing of a formal complaint, and use their offices to endeavour to rectify their members' practices. They should ensure that officials understand their willingness to do so, and their effectiveness of action.

Responsibility: Engineers Nova Scotia, the Nova Scotia Architects Association, and Interior Designers of Nova Scotia

3.4 Improving building quality, a shared responsibility

3.4.1 Issues with building quality

- a) Building science, i.e. the combination of, and interactions between, architectural, engineering and construction technology, has an important influence on building

¹⁴ A copy of the Engineers Nova Scotia's current Disciplinary Procedures, extracted from the revised Engineering Professions Act, is included as Appendix VII

quality. Failures occur where there is a lack of understanding of appropriate building science or of the implications of one element upon another (e.g. materials used and construction techniques).

- b) The construction process during certain points needs to have more oversight: testing of systems, mock-ups e.g. window assemblies, testing and inspection of the building envelope by specialists. Requiring such tests would reduce or eliminate common points of failure, particularly those that apply to condominium and other multiple occupancy housing units, but also other types of construction. It was noted by informants in British Columbia that building envelope inspection alone has been identified as the single major factor in the quality improvement of that Province's buildings. A copy of the Guidelines for Professional Practice, Building Envelope Professional Engineer, of the Association of Professional Engineers and Geoscientists of British Columbia is attached as Appendix IV.¹⁵

3.4.2 Recommendations to improve building quality

- a) Inter-disciplinary continuing professional education in building science is essential to maintain current knowledge of materials, their application, and industry best practice. A coordination of effort is recommended to ensure that contractors, professionals and building officials receive appropriate training, perhaps through organizations such as the Design & Construction Institute of Nova Scotia (DCI)¹⁶, or by joint efforts of the continuing education and training units within construction and professional associations.

Responsibility: Joint by professional education associations and institutes.

- b) The requirement for clearer identification of, and the schedule for specific testing, including systems testing, is noted in the recommendations under 3.2.2 (b) above.

Responsibility: Building Advisory Committee, including monitoring outcomes for effectiveness.

- c) The requirement for building envelope inspection by a qualified specialist should be mandated for those forms of construction to which it applies. It is recommended that this qualification should apply to specialists within the current professional organizations (ENS, NSAA) and ideally should be a joint development of them both. Experience elsewhere has shown that the necessary skills and qualifications can be obtained at reasonable cost, and that there is a market demand.

Responsibility: Engineers Nova Scotia and the Nova Scotia Architects Association to jointly develop the guidelines and standards for building envelope inspectors. See Appendix IV for guidelines from BC which may provide a starting point. The Building Advisory Committee, in conjunction with the two professional associations, should develop an implementation plan that includes an advisory to

¹⁵ A similar document for architects is available from the Architects Institute of British Columbia.

¹⁶ DCI, the Design & Construction Institute, comprises architects, builders, engineers and owners, and has as its objective the advancement of co-operation and understanding among the various facets of the design and construction industry in the Province of Nova Scotia.

industry on the planned mandatory requirements, and a timeline for compliance that allows for development and availability of the required skills.

3.5 Warranties and Construction Quality

3.5.1 Issues – warranty implications

The 2008 *Homeowner Protection Report* included among its other recommendations that there should be a mandatory warranty on all new condominiums and potentially all new homes. Although further investigation of this matter is beyond the scope of this report, informants, especially those from the provinces of Ontario and British Columbia, noted as significant the impact that the mandatory new home warranty programs have had on the building inspection process.

In those jurisdictions where new homeowner warranty is mandatory, the warranty companies have imposed their own field review requirements, over and above those of the province or its municipalities. Warranty companies do this in order to manage and mitigate the risk that they undertake when they assume ultimate liability for building quality.

For example, Appendix V contains an extract from Builder Bulletin # 19 of the Tarion Warranty Corporation (formerly Ontario New Home Warranty Program) stating the requirements of the warranty program for independent field review by a building envelope specialist. The consultants were informed that in both Ontario and British Columbia the majority of such field reviews were carried out to meet the demands of warranty programs, as distinct from compliance with building code regulations.

3.5.2 Recommendations – warranty implications

Should Nova Scotia proceed to implement mandatory warranty for new homes, some adjustments to the recommendations above may be required. In particular, the recommendations for multi-disciplinary education may have to be adjusted to include the requirements and expectations of the warranty providers, and building envelope field reviews may become the domain of the warranty companies.

3.6 Monitoring Outcomes

3.6.1 Issues – monitoring

Several of the above recommendations include a requirement for monitoring of outcomes. As noted in the introductory sections of this report, construction is of necessity a collaborative process. There is no one body with the authority to oversee all aspects of that process, and at present no single body with a

mandate for monitoring either its effectiveness or deficiencies, in any general manner¹⁷.

3.6.2 Recommendations – monitoring

There is little point in making the changes identified in the above recommendations or others within the system if there is no mechanism to monitor progress or to see if the changes are working. British Columbia has established a joint committee for this purpose with leadership provided through the Building and Safety Standards Branch, Ministry of Public Safety and Solicitor General.

In Nova Scotia the Building Advisory Committee, with leadership from the Department of Labour and Advanced Education, is an obvious choice for this role. Terms of reference for this additional mandate and appropriate monitoring resources will need to be identified, however any additional costs should not be significant. The benefits to the industry and to consumer confidence should be readily apparent and significantly outweigh any costs involved.

¹⁷ There are, of course, many organizations and authorities responsible for oversight of specific aspects, as noted in this report.

4 Conclusion

These recommendations are intended to address transparency, accountability and compliance with the process now in place. They require leadership, investment of time and commitment by the parties suggested, but should not result in significant additional costs to any of the parties, including developers. Regular, ongoing field reviews of complex buildings during construction should be seen as good business practice. The obligation to conduct these should not be viewed as a burden. If the building is designed and built well in the first instance, there will be concomitant savings in maintenance and operations which will defray any additional cost of inspection at the front end of the construction process.

It should also be noted that if implemented, these recommendations will not result in a guarantee of quality construction in all buildings. This outcome will only result from a concerted effort by all parties to ensure buildings are designed well and constructed well and that all parties take their obligations seriously.

Nova Scotia has a good reputation for quality building construction and we believe that these recommendations will strengthen and provide further confidence in the system.

5 Appendices

- Appendix I Steering Committee Membership and Terms of Reference
- Appendix II British Columbia Building Code Schedule B
- Appendix III Engineers Nova Scotia Guidelines for Professional Engineers
- Appendix IV BC Guidelines for Building Envelope Professional Engineer
- Appendix V Tarion Warranty Corporation Builder Bulletin # 19
- Appendix VI Canada's Construction System
- Appendix VII Revised Disciplinary Procedure, Engineers Nova Scotia

5.1 Appendix I Steering Committee Membership and Terms of Reference

Background

The *Building Code Act* established the authority for the use of Letters of Undertaking by architects and engineers in Nova Scotia in 1996 under the Nova Scotia Building Code Regulation. The Act and Regulation are administered and enforced by municipal building officials.

The objective of the Letters of Undertaking is to assist municipal building officials in determining that a design conforms to the minimum standards of the Nova Scotia Building Code and that the construction conforms to the design and as certified by the architect and engineers of record.

A report commissioned by Service Nova Scotia and Municipal Relations, entitled New Homeowner Protection by Novus Consulting Group Ltd to, made the following recommendation:

The Provincial Building Code Authority and the Architectural and Engineering governing bodies should review the obligations under Letters of Undertaking and consider how they can be improved and/or strengthened. Professional governing bodies should also be required to report compliance failures to the relevant Provincial and Municipal authorities.

The Nova Scotia Building Advisory Committee [NSBAC] is a government appointed stakeholder body that reports to the Minister responsible for the Building Code Act. The NSBAC is on record supporting this important review of the administrative requirements for enforcement since the early 2000's

Steering Committee

The NSBAC formed a Steering Committee comprised of the following members to provide guidance to the consultants selected by the Department of Labour and Advanced Education to carry out the review on behalf of the NSBAC.

Peter Greer, Chair	Carpenters Union
Heather Corrigan	Interior Designers of Nova Scotia
Jennifer Watts	Union of Nova Scotia Municipalities
Robert McLaren	Nova Scotia Association of Architects
Gary Ruitenber	Association of Professional Engineers of Nova Scotia
Mannie Withrow	Nova Scotia Building Officials Association
Robert Martin	Consumers Council of Canada
Scott Low	Service Nova Scotia and Municipal Relations
Ted Ross	Labour and Advance Education

Role of the Steering Committee

The Steering Committee reports to the Nova Scotia Building Advisory Committee.

The Steering Committee will provide guidance to the Consultants hired by the Department on behalf of the Committee, conducting the Review of Obligations under Letters of Undertaking.

The review undertaken by the Consultants will be to consult with key stakeholders' provincial and nationally on

- The use of Letters of Undertaking in the design and construction of buildings in Nova Scotia to determine if they meet the goals of the intended mandate;
- Identify regulatory or other improvements could be made to assure the quality of design and construction in the Province to assure consumers that their investment is protected; and
- Assure there is a robust and transparent process to identify and prosecute offenders under the Building Code Act and/or to take reasonable disciplinary action under their respective professional bodies legislative mandates.

Consultants Reporting

The consultants shall report to the Steering Committee at the commencement of the project and at key phases.

- Initial Start up meeting with staff & Steering Committee
- Upon delivery of the draft discussion paper at the end of Stage 3
- Upon delivery of the Final Report [meeting with Steering Committee and the Nova Scotia Building Advisory Committee.]
- Other occasions as may be identified.

Final Report

The final report will include, at minimum:

- 1) Identify the effectiveness of the current Letters of Undertaking
 - a) Identify strengths, weaknesses, deficiencies
 - b) Review the data collected for the Novus Final Report on Homeowner Protection.
 - c) Review the data collected for various Praxis Reports on the subject matter as may relate
 - d) In depth interviews with stakeholders including architects, engineers, insurers, risk managers, building officials, building owners, their respective associations, municipal and provincial prosecutors
 - e) Scan P/T for comparative data and literature.
- 2) Legislation and Regulation Review
 - a) Building Code Act and Regulation Requirements
Provisions for Enforcement
Penalties
 - b) Architect, Engineer, and Interior Design Acts

Act and Regulation

Insurance

Discipline

Enforcement

Penalties

Transparency

Robustness

Scan P/T for comparative data and literature.

3) System wide

Identify strengths, weaknesses, deficiencies.

4) Identify potential solutions

Building Code Act and Regulation - Letters of Undertaking

The Acts and Disciplinary Procedures

Architects', Engineers' and Interior Designers'

Municipal administration and enforcement

Systemic issues

5.2 Appendix II British Columbia Building Code Schedule B

Schedule B of the British Columbia Building Code 2006, Assurance of Professional Design and Commitment for Field Review, is attached for reference.

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 _____
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

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 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 requirements

CRP's Initials

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 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 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

5.3 *Appendix III Engineers Nova Scotia Guidelines for Professional Engineers*

Attached is a copy of the 1997 guidelines prepared by the (then) Association of Professional Engineers of Nova Scotia (now Engineers Nova Scotia) for Professional Engineers for field review of construction certificates.

October 15, 1997

**GUIDELINES FOR PROFESSIONAL ENGINEERS
REGARDING FIELD REVIEW
OF CONSTRUCTION CERTIFICATES**

The Association of Professional Engineers of Nova Scotia

1355 Barrington Street, PO Box 129
Halifax, Nova Scotia
B3J 2M4

GUIDELINES FOR PROFESSIONAL ENGINEERS REGARDING FIELD REVIEW OF CONSTRUCTION CERTIFICATES

I FOREWARD

- 1) The Engineering Profession Act defines “engineering” as: “ the science and art of designing, investigating, supervising the construction, maintenance or operation of, making specifications, inventories or appraisals of, and consultations or reports on: machinery, structures, works, plants, mines, mineral deposits, processes, transportation systems, transmission systems and communication systems or any other part thereof; ”
- 2) The purpose of this Guideline is to establish the procedures for Engineers involved in complying with the requirements for the ***Field Review of Construction***, in accordance with the 1997 Nova Scotia Building Code Regulations, Section 2.1.1.5(2) pursuant to Section 4 of the Building Code Act, R.S.N.S., 1989, c.46.
- 3) Section 2.1.1.5 of the Nova Scotia Building Code Regulations states:

“ The owner who undertakes to construct or have constructed a building or part thereof within the scope of Part 4 of the National Building Code of Canada shall:

 - i) ensure that an architect, Professional Engineer or both are appointed to undertake the design of the building or part thereof, and
 - ii) complete and submit a letter of undertaking in the form specified in Schedule “A” for the Field Review of Construction of such buildings. “

The Field Review of Construction by Engineers, as per this document, is not to be confused with “Construction Supervision - Statement of Policy” published by APENS

- 4) An effective ***Field Review of Construction process*** is achieved when there is harmony and understanding between the Designer, Owner, Authority, Constructor, and the Professional or firm engaged to provide the field review during construction. This Guideline provides a base for that harmony and understanding and covers the portion of the project development process involving the engineers issuance of Certificates related to the various aspects of the Field Review of Construction. The recommended procedures

- contained herein are intended to guide professional engineers in the use of the various certificates identified.
- 5) The Field Review of Construction process, identified in the Building Code Regulations and referred to in this Guideline, is to be applied in the same manner whether the project is of a design tender nature or involves the “Design Build” approach.
 - 6) Commissioning of various systems within a building may be required by the Owner. Commissioning is not considered to form part of Field Review of Construction. Where commissioning is required to ensure that specific systems are functioning properly, the Owner is advised to make it a responsibility of the Constructor and ensure that it is included in the tender documents. The Owner should engage a firm or personnel knowledgeable in the system to form part of the Commissioning Team acting on the Owner’s behalf.
 - 7) It is APENS policy that Professional Engineers be retained, as required, to provide “Field Review of Construction”. To proceed otherwise may lead to prosecution under the Nova Scotia Engineering Profession Act as well as the Building Code Regulations.
 - 8) This Guideline is not intended to be a legal document nor to supersede or replace contractual arrangements that are designed to satisfy specific situations. APENS will not be responsible for any damages, howsoever caused, resulting from its use or non-use on any assignment or project.
 - 9) The attached Schedules A, A1, A2, A3, A4, A5, A6, A7, A8, A9 form part of the Building Code Regulations and are to be completed, as required, to meet the requirements of this legislation.

II DEFINITIONS

Following are definitions contained in the Nova Scotia Building Code Regulations, 1997, and are to be used in reading this Guideline.

Architect	A member licensed to practice or licensee of the Nova Scotia Association of Architects
Code	The Nova Scotia Building Code

Field Review of Construction

This is limited to the inspection of the construction work, at intervals appropriate to the stage of construction, at the project site and, where applicable, at the fabrication location where building components are fabricated for use at the project site, that the designer in their professional discretion consider necessary to determine general compliance with the design drawings accepted by the Authority having jurisdiction and all revisions thereto. Field Review of Construction does not include the coordination, quality and performance of construction.

National Building Code of Canada, 1995

The National Building Code of Canada, 1995 as issued by the Canadian Commission on Building and Fire Codes, National Research Council of Canada, NRCC No. 38726, including all revisions and errata and corrections to errata made by that body on or before the date these regulations come into force

Owner

Includes a person controlling the property under consideration and also, prima facie, the assessed Owner of the property whose name appears on the assessment role prepared in accordance with the Assessment Act

Professional Engineer

A member or licensee of the Association of Professional Engineers of Nova Scotia

III PROCEDURAL GUIDELINES

The purpose of this Section is to encourage province and industry wide uniformity in the application of the attached Schedules in the interests of overall efficiency, effectiveness and safety.

A General

The Owner of a building who undertakes to construct a building, or part thereof, within the scope of Part 4 of the Code must, as part of the submission for a Building Permit, include a letter of undertaking to the Authority having jurisdiction

(the appropriate Municipal Authority) for the Field Review of Construction. (See Schedule A.)

In instances where the Owner is taking responsibility for the completion of the appropriate Construction Design Certificate, the Owner must ensure the appropriate Field Review of Construction Certificates are submitted as requested. In instances where the Owner has appointed a Professional Engineer as the Prime Consultant to coordinate the Field Review of Construction, the Professional Engineer who is acting as Prime Consultant in his capacity shall complete Schedule A1, a copy of which is included in the Appendices.

B Selection of a Professional Engineer to Provide Services Related to the Field Review of Construction

Upon receiving a request from an Owner to be engaged to either;

- 1) act as the Prime Consultant in coordinating the Field Review of Construction or
- 2) act as the Engineer completing the Field Review of Construction Commitment Certificates (Schedules A2 through A9 as applicable to the services being provided),

the Professional Engineer should identify to the Owner the appropriate duties (i.e. number of visits to the site required) commensurate with the level of service deemed appropriate by the Professional Engineer in keeping with the responsibility identified under the Building Code Regulations. These discussions with the Owner should ensure that the review of construction is carried out at intervals appropriate to the stage of construction so as to allow for the Engineer to determine general compliance with the design documents.

The Professional Engineer should take into account, when identifying to the Owner the specific duties to be completed, the complexity of the project as well as any special circumstances which may be relevant. If the Owner and Professional Engineer cannot agree on this matter, the Owner should proceed in opening discussions with another Professional Engineer. This process is identified in the Guidelines for Selecting a Consulting Engineer, a copy of which is included in the Appendices. Professional Engineers are cautioned against signing the documents contained in Schedules A1 to A9 until the terms of their engagement are agreed to. Once agreement is reached by the Professional Engineer and the Owner, to proceed APENS recommends the following:

- 1) In circumstances where the Professional Engineer engaged to complete the Field Review of Construction Certificate is not the Design Engineer, the

engineer carrying out the Field Review of Construction must be satisfied that the intent of the design is understood including any special features or construction required.

- 2) Each Engineer engaged to complete the Field Review of Construction will sign a Field Review of Construction Inspection Commitment Certificate for one or more of the following aspects of the building, based on the level of involvement agreed to:
 - i) Building Design Requirement (see Schedule A2)
 - ii) Structural Design Requirements (see Schedule A3)
 - iii) Mechanical Design Requirements (see Schedule A4)
 - iv) Electrical Design Requirements (see Schedule A5)
 - v) Fire Suppression Systems Design Requirements (see Schedule A6)
 - vi) Geotechnical Design Requirements (see Schedule A7)
 - vii) Plumbing Design Requirements (see Schedule A8).

These forms are then submitted to the Owner, or the Prime Consultant identified under Schedule A1, to coordinate the Field Review of Construction.

Once submitted, the Owner or the Owner's designated representative applies to the Authority having jurisdiction for a Building Permit and attaches all the relevant Inspection Commitment Certificates.

- 3) The Engineer engaged to carry out the Field Review of Construction should then:
 - i) obtain the names of engineering firms providing the Field Review of Construction for all engineering disciplines covered under Schedules A2 to A8 for coordination purposes, if relevant
 - ii) review with the Contractor and Owner the general frequency and schedule of construction review, including the notice required.
- 4) Upon completion of the field Review of Construction, the Engineer, when deemed appropriate, will sign a Certificate (see Schedule A9) applicable to the obligations identified in the respective Inspection Commitment Certificates. This document will then be submitted to the Owner or the Owner's designated representative.

IV RESPONSIBILITIES UNDER THE VARIOUS FIELD REVIEW OF CONSTRUCTION INSPECTION CERTIFICATES

A General

As provided in Section 1.3.1.3 of the NS Building Code Regulations, the Field Review of Construction by Engineers does not include the coordination, quality and performance of construction. This is the Contractor's responsibility.

The Field Review of Construction by Engineers is required so as to determine that the constructed works are in general compliance with the design drawings.

B Schedule A1, Inspection Commitment Certificate

The Engineer acting as a Prime Consultant is coordinating the Field Review of Construction on behalf of the Owner will:

- i) coordinate the review of shop drawings by the appropriate professionals
- ii) coordinate the review of changes to the design documents which may occur during the construction phase
- iii) coordinate the submission of all the relevant Certificates of Field Review of Construction.

C Schedule A2, Building Design Requirements

This Certificate covers the Field Review of Construction for the Building Design aspects of the project, which are within Part 3 and Part 5 of the Code and as shown in the design documents submitted to the Authority having jurisdiction. However it is not to include areas of work referred to in the Certificates contained in Schedules A3 to A9.

D Schedules A3 to A8

These Certificates cover the Field Review of Construction for the indicated aspects of the building as identified on each Certificate. The Engineer should ensure the following before signing such a certificate:

As the Engineer reviewing the constructed works to determine general compliance with the design, the Engineer should only review design drawings stamped by a Professional Engineer. In addition, the drawings reviewed during this process must be the drawings accepted by the Authority having jurisdiction, including all relevant revisions.

E Schedule A9, Certificate of Field Review of Construction

This Certificate confirms that the Engineer has fulfilled their obligations as defined in the Letter of Undertaking and in the Inspection Commitment Certificate, and that the constructed works for which they are responsible are in general compliance with the design.

This certificate is submitted to the Owner or the Owner's representative as, until that is done, an Occupancy Permit will not be issued by the Authority having jurisdiction.

V APPENDICES

Schedule A	Letter of Undertaking
Schedule A1	Field Review of Construction Inspection Commitment Certificate - Prime Consultant
Schedule A2	Field Review of Construction Inspection Commitment Certificate - Building Design Requirements
Schedule A3	Field Review of Construction Inspection Commitment Certificate - Structural Design Requirements
Schedule A4	Field Review of Construction Inspection Commitment Certificate - Mechanical Design Requirements
Schedule A5	Field Review of Construction Inspection Commitment Certificate - Electrical Design Requirements
Schedule A6	Field Review of Construction Inspection Commitment Certificate - Fire Suppression Systems Design Requirements
Schedule A7	Field Review of Construction Inspection Commitment Certificate - Geotechnical Design Requirements
Schedule A8	Field Review of Construction Inspection Commitment Certificate - Plumbing Design Requirements
Schedule A9	Certification of Field Review of Construction

5.4 *Appendix IV BC Guidelines for Building Envelope Professional Engineer*

Attached are the Guidelines for Professional Practice, Building Envelope Professional Engineer, of the Association of Professional Engineers and Geoscientists of British Columbia.



Association of Professional Engineers and
Geoscientists of British Columbia
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Toll-free in BC 1-888-430-8035
E-mail: apeginfo@apeg.bc.ca
Web site: www.apeg.bc.ca

GUIDELINES FOR PROFESSIONAL PRACTICE BUILDING ENVELOPE PROFESSIONAL ENGINEER (Approved by APEGBC Council September 9, 1999)

1. Basic Building Envelope Professional Services

The role of the Building Envelope Professional Engineer (BEPE) is to provide review of the building envelope design to the project architect or coordinating registered professional with respect to environmental separation and the performance of materials, components and assemblies of the building envelope. The responsibility for the design and field review of the construction of new buildings rest with the project Architect, except when a professional engineer is providing architectural services under the AIBC/APEGBC Memorandum of Agreement.

The usual phases of the *Basic Services*, as discussed below, are generally organized in a consulting agreement according to the sequential stages of a typical project. They are intended to assist the *Building Envelope Professional* (BEP) in addressing the *Building Envelope* performance issues around control of Heat, Air and Moisture as defined in Part 5 of the Building Code.

For the purposes of this document, element means an assembly, component or material forming part of the *Building Envelope*, and performance means performance with respect to Part 5 of the Building Code.

1.1 Conceptual or “Schematic” Design Phase

In the conceptual or schematic design phase, the *BEP* shall:

- 1.1.1 Attend as required, meetings with the Consultant and design team to obtain information regarding the functional, aesthetic, cost and scheduling requirements. The *BEP* review should focus on the *Building Envelope* elements and performance requirements defined in Part 5 of the Building Code.
- 1.1.2 If required, assist the *Coordinating Registered Professional (CRP)* in identifying the need for any specialist envelope consultants who may be required for the project.
- 1.1.3 Review the design criteria and environmental loads for the *Building Envelope* assemblies in consultation with the CRP.

- 1.1.4 Review applicable codes, standards, regulations, restrictions, insurance requirements and other factors affecting the performance of the building envelope.
- 1.1.5 Review compatibility and interaction with other building systems.
- 1.1.6 Review the preliminary design concept, together with alternate design concepts where appropriate.
- 1.1.7 Consider the requirements of other design professionals and provide information relating to the *Building Envelope* design, as they require.

1.2 Design Development Phase

In the design development phase, wherein the accepted conceptual design is developed in sufficient detail to enable commencement of the *Contract Documents* by all participants in the design team, the *BEP* shall:

- 1.2.1 Review preliminary drawing of such *Building Envelope* elements as: walls, windows (and glazed elements), roofs, balconies, decks, and typical interface details between elements of the *Building Envelope*.
- 1.2.2 Review durability of *Building Envelope* elements, and consider maintenance, renewals and service life requirements. Specific consideration should be given to the following items:
 - (a) Expected service life of the *Building Envelope* elements;
 - (b) Consideration of the layering of *Building Envelope* elements, so that repair and replacement of elements with shorter services lives does not require the removal or replacement of items with longer service lives; and
 - (c) Materials compatibilities and resistance to various mechanisms of deterioration, given the nature, function and exposure of the materials.

1.3 Contract Development Phase

In the contract documents phase the *BEP* shall:

- 1.3.1 Review the construction documents to verify that they describe *Building Envelope* elements that achieve the performance criteria that were established during the Schematic Design Phase and further developed during the Design Development Phase.
- 1.3.2 Provide technical input into the specifications.
- 1.3.3 Assist in establishing testing and inspection requirements.

- 1.3.4 Assist the client in obtaining the required approvals, licenses and permits, including preparation of the relevant documentation required by the authority having jurisdiction.

1.4 Bidding and Negotiation Phase

In the bidding and negotiation phase the *BEP* shall:

- 1.4.1 Provide assistance to the CRP in preparing addenda to the design, and clarification of the construction documents as required.

1.5 Construction Phase

In the construction phase, the *BEP* shall provide services for all *Building Envelope* elements which the *BEP* has reviewed in earlier project phases.

Some items reviewed by the *BEP* may also require review by other members of the design team or by testing or inspection agencies. Such work may include waterproof membranes, glazing, pre-cast concrete elements, welding, proprietary products, and primary and secondary structural elements.

Construction phase services shall include, but not necessarily be limited to the following, and may vary depending upon the complexity of the job and the experience of the contractor.

- 1.5.1 Attend construction meetings, if required.
- 1.5.2 Assist in confirming, reporting and scheduling procedures for testing and field reviews.
- 1.5.3 Assist in confirming that the qualifications of fabricators meet the specifications.
- 1.5.4 Assist in review of submittals for general compliance with the contract documents.
- 1.5.5 Assist with the review of *Building Envelope* related shop drawings and other submittals for general conformance with the contract documents and the intent of the design.
- 1.5.6 Provide enhanced field review, visiting the site at sufficiently frequent intervals, appropriate to the stage of construction, and review a substantial number of the details (rather than just a representative sampling) to observe the quality and the progress of the construction of those elements reviewed by the *BEP*. The term “enhanced field review” is used to differentiate the level of review which a *BEP* shall provide, which supplements the level of field review and assurances which shall be provided by the architect and other registered professionals.

- 1.5.7 Review reports provided by material and component manufacturers, as well as other reports prepared by professionals reviewing *Building Envelope* elements.
- 1.5.8 Prepare site visit reports outlining observations and deficiencies in the work and bring them to the attention of the CRP.
- 1.5.9 Make site visit reports available to the authority having jurisdiction upon request.
- 1.5.10 Assist in arranging for and observing the mock-up and/or testing of key envelope elements such as wall assemblies or window installations, where required.
- 1.5.11 Review the continuity of thermal insulation, moisture, air and vapour barriers.
- 1.5.12 Review drainage paths.
- 1.5.13 Review the acceptability of the moisture content of wood products.
- 1.5.14 Review that components and materials used are those specified in the contract documents.

2. **Additional *Building Envelope Professional* Services**

In addition to the *Basic Services*, the *BEP* may be required to provide the following *Additional Services* if they become necessary during the course of the project. They are generally not considered part of the basic services, as discussed in the preceding sections, and may require a review of the service agreement between the *BEP* and their client.

Examples of Additional Services are:

- 2.1 Work resulting from changes to the project as originally described and agreed to under the contract between the *BEP* and client, such as changes in scope, schedule, cost, complexity, diversity or magnitude of the project;
- 2.2 Review of alternate designs and related documentation after selection of the *Building Envelope* designs are made during the conceptual design and design development phases;
- 2.3 Review of alternate or substitute assemblies if requested by the *BEP*'s client for tendering to obtain competitive bids for such items such as propriety products;
- 2.4 Work connected with the review of documents for tendering segregated contracts, pre-tendered contracts, phased or fast-track construction;
- 2.5 Assistance in preparing or reviewing construction cost estimates;

GUIDELINES FOR PROFESSIONAL PRACTICE – BUILDING ENVELOPE PROFESSIONAL

- 2.6 Review of alternate designs or products after completion of the contract documents;
- 2.7 Special physical model analysis such as wind-tunnel;
- 2.8 Full-time inspections of construction;
- 2.9 Review of additional submittals when occasioned by improper or incomplete submittals;
- 2.10 Work resulting from corrections or revisions required because of errors or omissions by others; and
- 2.11 Work resulting from damage during construction as the result of fires, man-made disasters, or natural disasters.

5.5 Appendix V Tarion Warranty Corporation Builder Bulletin # 19

Attached is an introductory extract from Builder Bulletin number 19 of Tarion Warranty Corporation (formerly Ontario New Home Warranty Program) titled “Condominium Projects: Design and Field Review Reporting”.

The full document may be found at <http://www.tarion.com/New-Home-Builders/Policies-and-Guidelines/Builder%20Bulletins/Bulletin19.pdf>

Condominium Projects: Design and Field Review Reporting

This bulletin and its related documents replace Builder Bulletin 19 (Revised) that was in effect from March 1, 1995 until June 30, 2001.

WHAT THIS BULLETIN IS ABOUT

This bulletin lays out the requirements for reports and information that must be provided to the Ontario New Home Warranty Program (ONHWP) by Field Review Consultants and the builders/vendors of 'Designated Condominiums' enrolled under the *Ontario New Home Warranties Plan Act*. Designated condominiums are those condominiums described in the table on page 2 of this introduction as Types C and D.

Provision of information, certificates and reports relating to the design and field review phases of a condominium project are conditions of continued registration of the vendor/builder.

This Bulletin contains a number of changes and additions to the previous Bulletin 19 that was effective from March 1, 1995. The changes seek to bring more clarity and greater consistency to the nature and scope of reports supplied to ONHWP by Field Review Consultants (FRCs) acting on behalf of builders and/or vendors.

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HERE'S WHAT'S CHANGED

Steps have been taken to provide more structure to the FRC reporting requirements by establishing consistent reporting formats and by employing objective quality assessment standards.

FRC Bulletin 19 Qualification Status (BQS)

From the date of this Bulletin consultants wishing to undertake field review work for builders/vendors engaged in the construction of designated condominiums need to be qualified within the terms of Bulletin 19 (*see* Module 1). When a builder or vendor uses an FRC that does not hold BQS, ONHWP will take that factor into consideration when assessing the release of security.

Scope of Work

A 'Scope of Work' submission will replace the former field review contract. It details the level of effort and areas of review Field Review Consultants commit to. (*The Scope of Work is explained in* Module 2.)

Reporting Requirements

The requirement for the submission of monthly reports to ONHWP has been removed. The main reporting requirement now falls within the Milestone Reports. (*Milestone Reports are explained in* Module 4.)

Milestone Reports will be supplemented by briefer reports giving outline information. They will be submitted every 60 days. (*60 Day Reports are explained in* Module 4.) The requirement for a Design Review and the submission of a Bulletin 19 Final Report remains.

GENERAL

The provisions of Builder Bulletin 19 apply equally to both vendors and builders of condominiums described as Type C and Type D in the following table. Such condominiums are required, under the Ontario Building Code (OBC), to be designed by an architect and professional engineer. The Registrar reserves the right to designate any condominium project as being subject to the provisions of this bulletin.

DESCRIPTION OF CONDOMINIUM TYPES – (extract from Builder Bulletin 28 (Revised 2001) - 'ONHWP Requirements for Receipt and Release of Security'.)

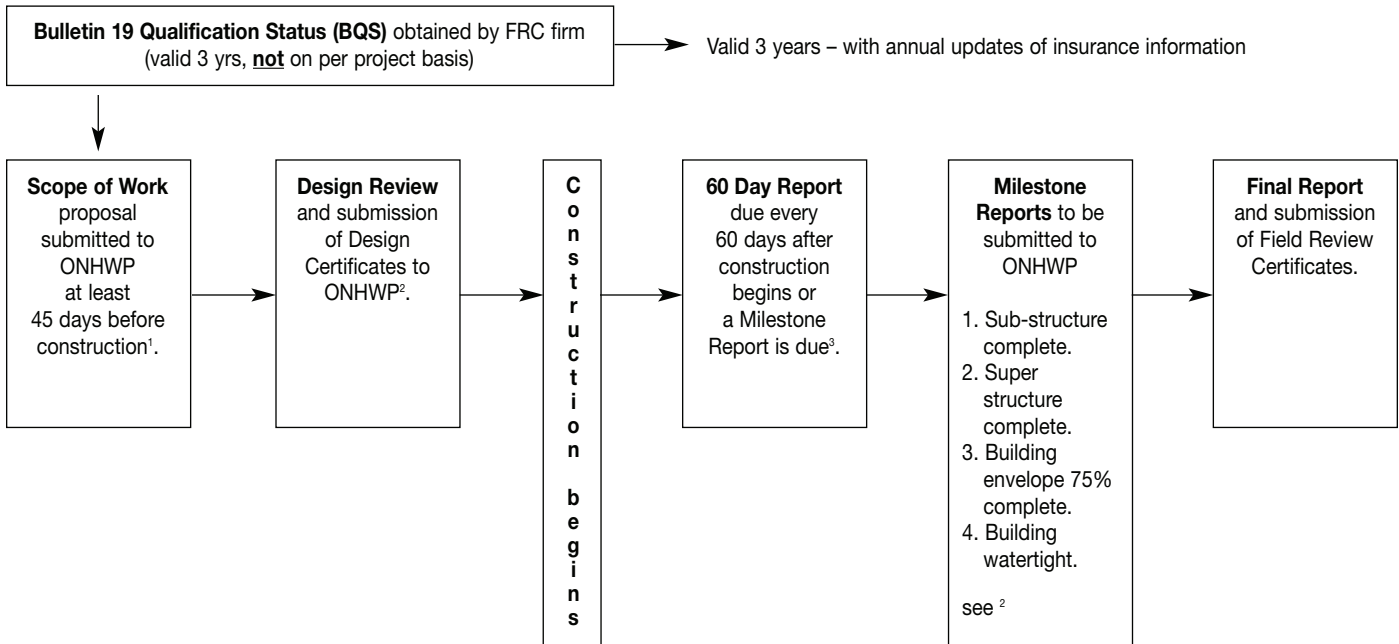
Category	Description
Condo:Type A	Project has only Part 9 OBC construction requirements and is a lot-line condominium.
Condo:Type B	Project has only Part 9 OBC construction requirements and is NOT a lot-line condominium.
Condo: Type C	Project has both; Part 9 and Part 3 OBC construction requirements.
Condo: Type D	Project has only Part 3 OBC construction requirements.

For the purposes of this bulletin, the term "vendor/builder" applies to vendors, builders, and those persons who are both. The terms "vendor" and "builder" are both defined in the *Ontario New Home Warranties Plan Act*.

Voluntary submissions for Type A and Type B condominiums

ONHWP is prepared to receive and process applications from vendors/builders of Type A and Type B condominiums that wish to **voluntarily follow the provisions of Builder Bulletin 19**. For further information on this matter contact the Manager of ONHWP's Condominium Office.

THE BULLETIN 19 PROCESS



It is assumed that FRCs observing the terms of this bulletin have attained BQS. (BQS is explained in Module 1.) The following documents must be completed and submitted to ONHWP throughout the design and construction phases of the condominium:

Scope of Work Proposal

As the first stage of the Bulletin 19 process the Scope of Work Proposal outlines the level of effort and number of visits an FRC commits to as part of monitoring identified risk areas. It must be submitted at least 45 days in advance of the start of construction and is subject to review and approval by ONHWP. ONHWP will respond to submitted Scope of Work proposals within 30 days of receipt. (The Scope of Work proposal is explained in Module 2.)

Risk areas and factors within the Scope of Work were identified following examination of ONHWP's complaints, claims, dispute resolution history and practical experience within the industry and the contributions of representatives of the FRC community.

1 ONHWP will review and respond to proposal within 30 days.

2 Design certificates may be submitted on a phased basis - see Module 4a.

3 No 60 Day Report will be required where a Milestone Report is completed within that 60 day period.

Design Review and Certificates

Design Certificates confirm that the design complies with the Ontario Building Code and good architectural and engineering practice. Individual certificates must be completed by each of the various design professionals who produce the construction documents as they relate to the identified risk areas laid out in the Scope of Work. The vendor/builder must submit each certificate to ONHWP at least 30 days prior to the commencement of the work covered by that portion of the design. *(A sample Design Certificate can be found in Module 4a.)*

60 Day Reports

The 60 Day Reports provide a tracking mechanism designed to assist ONHWP in assessing the progress of a project's construction without placing too large an administrative workload on the FRC. The reports are to be completed according to instructions found at the head of the report template. *(A sample report template can be found in Module 4b.)*

Milestone Reports

Comprehensive reports must be completed and submitted to ONHWP as soon as possible and, in any event, within 30 days of specified stages (milestones) of construction being completed. The reports will contain information on all outstanding deficiencies in existence at that point in time. An initial Milestone Report will be in two parts. The first part is a form giving deficiency tracking information and a summary of the issues. The second part, appended to the first, will be a narrative section giving general information about the construction as it relates to the element of the project in question. It will give full details of any deficiencies relating to it and list recommendations for their correction. *(The definition of 'deficiency' as it relates to Bulletin 19 is appended to Module 4.)* Subsequent Milestone Reports will have an additional tracking sheet that provides information on progress made to rectify previously identified deficiencies. ONHWP will review each Milestone Report and report back to the FRC and vendor within 30 days if further information is required.

Milestone Reports form the basis for establishing consistency in FRC reporting. The quality and content of reports will be scrutinized by ONHWP and FRCs will be advised if shortfalls in reporting standards are identified. *(For a fuller explanation of an FRC's responsibilities regarding the quality of reports please refer to the sections entitled 'FRC Bulletin 19 Qualification Status' and 'Application for Bulletin 19 Qualification Status' in Module 1.)*

All work required to correct deficiencies noted in any of the reports will be the responsibility of the vendor/builder and may influence the amount of security released following submission of the Bulletin 19 Final Report. Satisfactory repairs must be confirmed as complete by the FRC and referenced in the next Milestone Report(s) that falls due.

The Final Report

The FRC submits this report to the vendor/builder in the first instance and must notify ONHWP as soon as this has occurred. The vendor/builder then submits this report to ONHWP once construction of the condominium has been completed, the condominium declaration and description have been registered and all reports and information due to ONHWP have been received.

Field Review Declarations form a part of the Final Report and verify that review of the identified risk areas contained in the Scope of Work as they relate to the construction project have been completed to the satisfaction of the FRC. *(A sample Final Field Review Declaration is appended to Module 4d.)*

The vendor/builder must deliver a copy of the Bulletin 19 Final Report to the owner-elected condominium board of directors at the turnover meeting and the report may be referred to at a later date if warranty problems arise.

The final report must be a bound copy of the following documents:

- A copy of all Milestone Reports associated with the project
- Copy of the Condominium Declaration as filed with the Land Titles Office
- All Design Certificates
- Field Review Declaration

and the following documents as applicable:

- Design Architect's final clearance
- Site Work Engineer's final clearance
- Structural Engineer's final clearance
- Mechanical Engineer's final clearance
- Electrical Engineer's final clearance
- Occupancy permit - if available

BUILDER BULLETIN 19 AND THE RELEASE OF SECURITY

All information, reports, and certificates must be submitted to ONHWP within the time periods specified. The release of security is conditional upon ONHWP receiving the documentation as specified in this bulletin **and in Builder Bulletin 28** (which deals with such matters as unsold units and evidence of transfer of title for sold units, etc.) and is further conditional upon ONHWP accepting that the contents of those documents accurately reflect the actual conditions on site.

ONHWP will review the Bulletin 19 Final Report within 30 days of receipt and notify the vendor/builder of any further technical requirements or adjustments to the required security depending on the extent of any outstanding deficiencies as well as any outstanding administrative or non-technical matters. If ONHWP is satisfied there are no outstanding deficiencies, the release of security, subject to the requirements in Builder Bulletin 28, will be completed within 45 days of receipt of all the required documentation.

The FRC will assess the likely costs of rectifying outstanding matters based on current sub-trade prices for such rectification and provide them to ONHWP. ONHWP will then review the costs provided and retain an appropriate amount of the security. The amount retained will reflect the likely cost of rectification in the event that ONHWP was required to give effect to any remediation and will also take into account any outstanding administrative and non-technical costs.

If ONHWP does not receive the Bulletin 19 Final Report, it will continue to hold the vendor/builder's security for a maximum of seven years or until such time as ONHWP is satisfied that the building is constructed in accordance with the vendor/builder's warranty obligations under Section 13, *Ontario New Home Warranties Plan Act*.

For full information regarding ONHWP's requirements for the receipt and release of security, please refer to Builder Bulletin 28 (Revised, 2001).

ONHWP reserves the right to use the vendor/builder's security to ensure that the requirements of this bulletin are met on a continuing basis. With appropriate notice ONHWP may, at its sole discretion and dependent on the situation, either recognize the original Scope of Work submission or secure the services of another qualified FRC.

ONHWP UNDERTAKINGS

This bulletin places a number of time based performance requirements on FRCs. In return ONHWP is committed to completing elements of its administrative functions within specified periods of time. Generally, these functions relate to the processing and review of applications and submitted reports.

WHERE TO FIND THE FORMS FOR BULLETIN 19

Standardized reporting formats are crucial to consistent reporting. ONHWP has developed templates for all required reports and a link to these can be found on our web site at:

<http://www.newhome.on.ca/industry/otherprofessionals/>

Practitioners are welcome to download and save these forms as required. If preferred, the forms can be filled out while they are on the computer screen. According to need, the forms can be completed, printed and signed before being sent to the Condominium Office.

The forms are currently in a Microsoft Word Template format. If your office does not support Microsoft Word it may be possible to convert them. However, functionality of the forms may be lost. Offices without Microsoft Word may recreate the forms in the application of choice but should endeavour to ensure that the content of the forms follows the format established in the ONHWP produced versions.

IF YOU DO NOT HAVE ACCESS TO THE WEB BASED FORMS please contact the Condominium Office Clerk on 1-800-803-9913 ext. 307 and a copy of the forms will be sent to you on request.

FOR MORE INFORMATION

For more information on this bulletin **please contact the Condominium Office** of ONHWP. A list of all ONHWP offices can be found on the next page.



Aubrey L. LeBlanc
President/Registrar

5.6 Appendix VI Canada's Construction System

A copy of "Canada's Construction System – the context for model codes" published by the Canadian Commission on Building and Fire Codes, is attached to provide a general overview of the construction process, its participants, and the regulatory environment.



Canada's Construction

System.....the context for model codes

The purpose of this document is to foster understanding of the place of building, fire and plumbing codes in the construction and operation of buildings and houses in Canada.

Construction is a complex service and manufacturing industry, involving thousands of different component parts that are assembled into products and systems by a large number of workers both on- and off-site. Basic safety, health, accessibility and building protection features are addressed in construction codes. However, construction is primarily a market activity, the quality of whose products reflect the interplay of costs, time, availability of materials, skill and knowledge.

Each party involved in construction has certain responsibilities.

Owners have overall responsibility for their projects – for determining what will be built, for meeting laws, and for choosing reputable advisors and builders.

Designers have responsibility for producing functional working drawings and specifications that comply with applicable law and reflect owners' requirements, and they may perform site review for the owner.

General contractors have responsibility for overall construction, including buying, scheduling, workmanship, and management of subcontractors and suppliers.

Subcontractors have responsibility for their portion of the work (mechanical, electrical, drywall, excavation, etc.).

Manufacturers have responsibility for supplying products that meet both their advertised specifications, and applicable standards.

Standards development organizations have responsibility for producing reliable, useable standards.

The national government funds the development of model codes through the National Research Council, overseen by the Canadian Commission on Building and Fire Codes (CCBFC).

Provinces and territories have responsibility for adopting through legislation the building, fire and plumbing codes applied in their area.

Municipalities in most areas have responsibility for examining plans for conformance with codes, and many inspect projects for compliance. (In some areas of Canada, this is done by provincial/territorial agencies. There remain a few areas with no public oversight).

Because of the complexity of the system, there are practical limitations to each of these roles.

Canadians expect certain fundamental things from their construction system:

- basic health and safety,
- reasonable durability/servicability,
- choice, and
- value for money.

Systems To Help Determine What Should Be Built

Owners must make the basic decisions about what they want to have built to suit their needs. Owners vary dramatically in how much they know about the construction process. Often, they hire designers or companies that offer design/build services to help them make those decisions¹. Speculative developer/builders make their decisions on what to build based on their expectations of what future buyers or renters will want, as well as technical factors related to proper design and construction. There are a number of sources of information to help in these decisions.

Manufacturers' Information

Manufacturers of new products and systems have a significant interest in providing information about their products. While manufacturers are mainly interested in highlighting the advantages of their own products, their literature can also include notes and warnings on how their products should not be used or installed in typical situations. Sales representatives help answer questions or solve problems. Some large companies have full technical departments.

In addition, there are books that collect and publish competing manufacturers' information under standard specification headings. Many trade magazines also publish news briefs on product information and installation/design issues.

Standards

A standard is an agreed upon, written-down set of requirements against which products and systems can be measured or compared. Standards are used for everything from product dimensions to structural design, and from labeling to sustainable forestry practices.

In Canada's National Standards System, thousands of volunteers – users, manufacturers, consumers, contractors, engineers, architects, government representatives, researchers, etc. – are involved in the writing and updating of these standards. Most work through the four non-profit Standards Devel-

opment Organizations accredited by the Standards Council of Canada: the Canadian General Standards Board, Canadian Standards Association, Bureau de normalisation du Québec, and Underwriters Laboratories of Canada.

Many standards are used voluntarily by industry and buyers. Others are made mandatory when they are referenced in codes and regulations adopted by governments.

Insurance Requirements

Owners usually want to protect their construction investment with insurance coverage. Companies offering this service may have building design and construction requirements that go beyond the minimum required in codes.

Design and Best Practice Guides

Approaches to design, performance and system quality control are set out in design and best practice guides. Some of the best known are published by associations and agencies working to improve the market for their members' products, and by government agencies such as Canada Mortgage and Housing Corporation and the National Research Council Canada.

Consumer Information

Both private and public sector groups prepare and distribute consumer information, from "how to choose a renovation contractor" booklets, to extensive technical information aimed at property managers. These are often prepared by partnerships of groups such as industry associations, product manufacturers, retailers, utilities, financial institutions, research agencies, and government departments. In addition, there are a large number of books, magazines, sections of newspapers, television shows and web sites devoted to home and building topics.

Drawings and Specifications

Drawings are a graphical description of the work. Specifications are a written one. They set out general requirements, acceptable products, equipment, installation procedures, standards of workmanship, etc. Their scale and complexity vary widely, from simple one-page lists to multi-section documents. They are very important as legal docu-

¹ Use of professional architects and/or engineers is required by provincial /territorial law for larger and/or more complex buildings.

ments, describing responsibilities and the quality of workmanship and materials.

Model Codes

The Canadian Commission on Building and Fire Codes oversees production of the model National Building Code, National Plumbing Code and National Fire Code of Canada, plus other guidance documents. The model building code sets out minimum requirements addressing safety, health, accessibility and building protection. The model fire code addresses fire safety during the operation of facilities and buildings. The model plumbing code deals with safe installation of potable water systems, and removal of wastewater to municipal or private sewage systems. Other model codes (for example, electrical, gas and elevator codes) are produced by organizations such as the Canadian Standards Association.

Model codes have no force in law until they are adopted by a government authority with the appropriate jurisdiction. The model codes are very technical and presume that users are knowledgeable.

Provincial/Territorial Codes

Today, most provinces and territories have passed legislation adopting either the national model building, fire and plumbing codes produced by the Canadian Commission on Building and Fire Codes, or variations that include provincial additions, exemptions, or amendments. The Acts establish systems of building regulation, scope of application, enforcement powers, permits, consideration of non-standard products and systems, inspections, penalties and appeals.

Other Regulations Affecting Building

Provinces and territories have also established systems of planning and development review that affect what can be built, generally with a large municipal role. Official plans establish permitted land uses, and ensure appropriate services in new subdivisions and in established areas. Planning and zoning criteria may include minimum setbacks, lot coverage, density, massing, etc. Some municipalities have architectural controls affecting the appearance of new buildings.

Provinces and territories also oversee electrical and gas installations, with enforcement generally han-

dled by municipalities or utilities. Provinces and territories have additional regulations for elevators, boilers and pressure vessels. There are also various occupancy licences required by either the province or the municipalities (liquor licence, care homes, day cares, etc.) and requirements that go with them.

Provincial and territorial laws for the environment, flood control, occupational health and safety, etc. can also affect planning, construction and operation of buildings.

Systems For Quality Control

Once the design decisions have been made, focus shifts to construction itself. There are a number of systems to help avoid errors and assure the desired levels of performance and workmanship are obtained. The selection of reputable companies, site supervision and appropriate testing is essential. Construction code inspections by or on behalf of the authority with jurisdiction only provide a back-up review for those matters deemed to be in the public interest – for example, health and safety.

In-Plant Quality Control Programs

Materials suppliers and product and equipment manufacturers have their own programs to control quality and ensure their products perform as expected. The programs vary in complexity, reflecting the differences in the inherent risk in the products themselves. Reputable companies try to keep quality high to protect their reputation.

Third-Party Testing In Plant

Many manufacturers design their production to meet published standards. This may require tests of inputs, components and finished product, monitoring, etc. Where there is a market, some manufacturers will also design some products specifically to exceed minimum standards, and publish test results in product literature.

Certifications

Certification organizations are accredited to confirm that specific products, installations or systems meet published standards. Certification marks will

usually appear on products in an easily visible place.

Evaluations

It can be difficult and/or expensive to prove to municipal building officials that a new product provides the kind of performance required by codes. The Canadian Construction Materials Centre (connected with the National Research Council) was established to make this easier, by assessing a product's conformity to the model codes' performance expectations on a national basis. Ontario has a similar process just for its own building code.

Testing On Site

Some products and installations require site testing. Concrete, for example, is usually tested during placement. Tests are performed for the owner by a third party. The more complex the building, the more testing may be recommended by the owner's consultants. For complex facilities or systems, designers may analyze testing requirements and recommend "commissioning" protocols, based on risk assessment.

Contractors' Inspections

Contractors' own site inspections are an extremely important part of the quality control process. General contractors/builders appoint site supervisors to review all the work included in the contract, to check that it has been done, and according with the drawings and specifications – by their own forces or by subcontractors. Similarly, trade contractors oversee the work of their own employees and sub-trades.

Architects' and Engineers' Review

Architects and engineers are often retained to review construction (mandatory for most larger projects, depending on provincial legislation, project size and complexity). They usually visit the site on a regular basis and review work at specific stages, before it is hidden by further construction or finishes. They also advise owners on progress, identify required tests, and review results.

Plans Evaluation and Inspections

Owners must apply to the municipal building department for the required permits and pay the required fees. Site inspections are usually part of the permit process, but only address the codes' minimum safety, health, accessibility and building protection requirements. In many municipalities, the fire services will also review plans, focussing specifically on fire safety issues that will arise once a building is occupied. The building will then be inspected periodically to make sure that the fire safety features are maintained.

Private Third Party Inspections

Some government jurisdictions allow private third party inspectors to do some, or all, of the work of a municipal building inspector. These inspectors must generally pass specific courses and/or be certified. In some areas, they are hired by the government. In others, they are hired by the owner of the construction project.

Warranty and Insurance Requirements

Some buildings, typically houses, are covered by warranty programs. These programs can require that plans be reviewed by program staff and site inspections be made to assess conformance with program requirements.

Systems To Improve Business And Technical Knowledge

The construction industry employs many workers with various skill levels, from entry-level labourers to highly skilled trades and specialists. There is an educational infrastructure in Canada to provide initial education appropriate for the job demands, make available ongoing short courses and updates, and register both firms and workers. Some provinces/territories have minimum training requirements for certified or licensed practitioners.

Trades Training

Provincial/territorial governments are responsible for administering publicly operated training programs, including apprenticeship, trades training, vocational training and licensing/ certification. Community colleges offer most of the courses for initial trade qualifications. There are ongoing efforts to coordinate training and apprenticeship requirements across the country, to facilitate labour mobility. Several provinces support specialized colleges for fire safety training.

Professional Architects and Engineers

Governing bodies for professional architects and engineers set training requirements across the country. To qualify for a license to practice, these professionals must complete a recognized course of study at an accredited post-secondary institution, as well as a period of internship. Specialist and updating courses are also available, and are mandatory in some jurisdictions.

Other Courses

Many voluntary courses are available for workers and management in all types of trade and building firms. Some are offered through community colleges, some through associations, some directly through manufacturers. Certain courses of study may lead to accreditation, usually on a voluntary basis, that help people to show their qualification to perform the work.

Provincial/Municipal Licensing

Requirements vary from province to province. All provinces set up self-regulating licensing bodies for architects and engineers. Quebec requires all contractors and trades to be licensed with the Régie du bâtiment du Québec. British Columbia requires all residential builders and renovation contractors to be registered with the Homeowner Protection Office. Many municipalities require specific trades to be licensed in order to conduct business in their jurisdiction.

Systems To Allocate Responsibility

Basic responsibilities are established through the body of laws passed by the federal and provincial/territorial governments. In the common law jurisdictions, responsibilities are also established by court precedents. Other responsibilities are outlined in contracts. Building and safety codes acts are a fairly small part of the overall system to allocate responsibilities.

Legal Framework

Quebec's civil code makes builders, architects and engineers who have managed or inspected the work, subcontractors (for their own work) and vendor/promoters jointly liable for defects in the work for one year. For major defects, that extends to a period of five years from the date of completion.

In the common law provinces and territories, most claims would be covered by contract law, the laws of negligence, and the statutes of limitations. The principle of "joint and several" liability means that anyone partially responsible for a construction defect that causes damages can be required to pay the whole amount if the other parties are unable. Statutes of limitations set the time limit for pursuing claims. Alberta's 1994 Safety Codes Act sets out roles and responsibilities for all the parties to a construction project. There is a 10-year final limitation on claims arising from construction. British Columbia's Homeowner Protection Act sets penalties for people who build and sell homes without obtaining the required warranties.

Contracts

Construction contracts vary, but are usually based on industry standards. They generally include a description of the responsibilities and work to be done (often referencing drawings and specifications), price, construction schedule, warranty terms, insurances, and how changes, delays or disputes will be handled.

A contract is legally binding on the parties to it.

Systems To Protect Consumers

Building projects are complex, on-site manufacturing and assembly operations, which usually face both time and budget constraints. It is usual to have minor defects that require repair or replacement. However, the limited scope of codes (safety, health, accessibility and building protection) means that they have little if any application to what is traditionally thought of as “consumer protection.” Industry has, therefore, developed a number of ways to respond to problems, and some have been made mandatory by governments.

Company Warranties

The standard warranty is one year from the date of substantial performance of the work. Longer periods may be specified in the contract documents for certain products and portions of the work, and longer manufacturers’ warranties are to be issued to the owner. Guarantees from product and equipment manufacturers vary, depending on the expected life of the product.

Insured Warranties (voluntary)

Insured or third party warranty programs are used in the housing industry. They are required by law in some provinces, and are available on a voluntary basis in the rest of the country.

Under these programs, a third party corporation agrees to fulfill the home builder’s warranty to the home buyer if the builder does not. The terms differ across the country, but normally include a one or two-year full labour and materials warranty, plus coverage for major structural defects until at least the end of the fifth year. Some programs have additional coverage; some offer options, available for an additional premium.

Government Required Warranties

In British Columbia and Quebec since 1999, and in Ontario since 1976, the provincial governments have legislation requiring some or all new homes to be covered by third party warranties or insurers. The Acts in these three provinces establish coverage, application, enforcement, penalties and appeals, plus criteria and provincial review of providers. They are quite different in their application, approach and definitions.

Bonds

A bond is a three-way agreement between the principal (usually the contractor), the obligee (usually the owner) and the surety company. In a performance bond, if the contractor doesn’t perform the contract properly, the surety must remedy the default. Before issuing a bond, surety companies usually review a company’s financial resources, staff, management performance and past experience. It can be very difficult for new or smaller contractors to obtain bonds.

Property Insurance

Normal property insurance is not intended to cover defects in construction. However, it does provide protection to the owner from the loss of property in cases of fire or other disasters.

The Consumer’s Responsibility

Many buyers or users of construction services, especially home buyers, do not have a full understanding of construction, business practices, and the protection they do and do not have under the system. A number appear to believe that codes and municipal enforcement are intended to cover more than they actually do.

All buyers have responsibilities for protecting their own best interests by:

- checking into companies’ reputation, experience and qualifications,
- checking references,
- getting legal review before signing contracts,
- allowing sufficient time and money for better products, careful work, and good inspections,
- choosing appropriate insurances and warranties,
- inspecting completed work,
- reporting problems promptly, and
- doing required ongoing routine maintenance.

Advice

Consumers who face problems and are unsure of their rights and obligations can consult legal specialists familiar with the construction system. Useful general information, advice and support is also available from organizations such as the Consumers' Association of Canada. The Homeowners Protection Office in British Columbia has also published a guide for new home buyers.²

Systems for Recourse

Errors and Omissions Insurance

As professionals in self-regulated professions, architects and engineers are barred from limiting their liability for negligent work. Because of this, together with the principle of joint and several liability, they can end up having to pay the full amount of damages if the other responsible parties are no longer available. Professional liability insurance can help to cover their potential liabilities, and is required in many provinces/territories.

Municipal Liability Insurance

Municipalities can face potential liability for negligent plans examination or inspection by their staff. Some municipalities take out commercial liability insurances; others cover their liability through association-run programs; still others self-insure. Because of the principle of joint and several liability, municipalities can be drawn into disputes between other parties, even though their role has been very limited.

Lawsuits, Mediation and The Courts

It can be expensive and time consuming to pursue legal rights through the courts. Sometimes, defendants don't have enough assets for a case to be worthwhile to pursue. However, legal rights and precedents have an important impact on the advice given to consumers and companies, and on how business is conducted.

² *Buying a New Home: A Consumer Protection Guide. Homeowner Protection Office, Vancouver 1999.*

In addition, more and more contracts include a provision for disputes to be settled by mediation (a faster, less adversarial process), and some provinces have begun to include mediation as the first stage in the legal process. Warranty programs often use a form of mediation (conciliation) as a first response to claims.

Systems To Respond to Problems

The vast majority of construction problems turn out to be simple things, which can and do get fixed quickly. But some are more widespread, and more difficult to address. This is especially true of "system" problems that are caused by the interaction of more than one product, installer, design specialty, etc. Even here, the construction system has networks and routes to identify and respond to problems.

Problem Identification and Response

Problems and complaints are tracked on both a formal and informal basis at various levels. They lead to product improvements, and changes to buying and specifications.

Those that are not easily resolved get discussed in wider forums. Builders, designers and installers all discuss problems and solutions at their association meetings. Building, plumbing and fire officials do a similar thing through their associations. Product associations keep track of questions and complaints to help them improve design and features. Members of a standards-writing group may hear concerns and respond. Researchers may find they are getting a number of calls on the same issue. Warranty programs and insurers who have to pay out on claims will start doing their own investigations.

Research, Development and Information

The Institute for Research in Construction at the National Research Council has an ongoing program of research into building science. The Industrial Research Assistance Program helps provide access to information and support for innovation through a network of technology advisors. Canada Mortgage and Housing Corporation does extensive work to support research and development in housing. Natural Resources Canada has been a key player in work involving energy efficiency in

buildings. Universities, research institutes and affected agencies such as utility companies get involved. Manufacturers and product associations do a significant amount of research into product improvements, new products and applications. Business and professional associations also support research.

Fire Safety

Because of the importance of fire safety, fire codes require periodic inspection and maintenance of all fire safety systems in buildings. Although building owners are ultimately responsible for ensuring their buildings are safe, these periodic inspections play an important role in identifying safety problems and in having them fixed.

The Components of Good Building

Good buildings require a healthy overall construction system, including:

- a well-functioning market,
- readily available consumer and industry information sources,
- a legal framework for the conduct of business,
- reliable standards and testing,
- mandatory minimum construction codes,
- site inspections and quality control,
- warranties and insurances,
- education and training,
- systems to identify and respond to emerging problems, and
- maintenance of safety systems

Systems for Keeping Up to Date

In addition to formal programs of continuing education and professional development, there are several other key ways for owners and industry to keep up to date:

Trade Shows

Most consumers are familiar with Home Shows, which feature new products, services and design ideas aimed at the home buyer or owner wanting to renovate. Similar shows are held specifically for industry on a regular basis, in Canada and around the world. Shows may be industry-wide, or focus on individual specialties, such as plumbing, heating and air conditioning.

Trade Publications

Numerous publications serve the construction industry and its various specialized groups. There are subscription-based publications, free circulation publications supported by advertising, and newsletters issued by voluntary associations and institutes, individual companies, and industry organisations mentioned in this paper. At the consumer level, every newspaper in the country seems to run a homes section. New technologies, new products, demonstration projects, "how to" articles, identification and resolution of problems, and (for the more technical) scientific reports, are regular features.

Membership in Voluntary Associations

There are many voluntary-membership associations in the construction industry. Most share information among members, and work cooperatively for industry improvements. This may include seminars, education programs, information programs for consumers/clients, conferences, etc. Many are actively concerned with construction quality, have committees that discuss problems, and offer information sessions for members.

Please send comments on this publication to:

The Secretary
Canadian Commission on Building and
Fire Codes
National Research Council Canada
Ottawa, Canada K1A 0R6

5.7 Appendix VII Revised Disciplinary Procedure, Engineers Nova Scotia

Engineers Nova Scotia revised its Disciplinary Procedure in June 2010.

The revised procedure is reflected in the Engineering Profession Act, CHAPTER 148 OF THE REVISED STATUTES, 1989 amended 2006, c. 29; 2008, c. 15; 2009, c. 13; 2010, c. 15. “An Act Respecting the Engineering Profession”.

The section “Discipline by Council” is extracted from the Act in this appendix.

Extract from the Engineering Profession Act, CHAPTER 148 OF THE REVISED STATUTES, 1989 amended 2006, c. 29; 2008, c. 15; 2009, c. 13; 2010, c. 15. “An Act Respecting the Engineering Profession”

(Short title: 1 This Act may be cited as the Engineering Profession Act. *R.S., c. 148, s. 1.*)

Discipline by Council

17 (1) A complaint against a registrant may be initiated by any person.

(2) A complaint must be in writing and filed with the Secretary.

(3) Upon the filing of the complaint, the Secretary or the Secretary's designate shall forthwith by written notice

(a) advise the registrant complained against that the complaint has been made;

(b) enclose a copy of the complaint; and

(c) advise the registrant complained against that the registrant has the opportunity to provide the Secretary with a written response to the complaint within fourteen days of the date that a copy of the complaint was sent to the registrant.

(4) The Secretary or the Secretary's designate shall forward the response of the registrant complained against, if any, to the complainant.

(5) The complainant may submit a written response to the response of the registrant complained against within ten days of the response of the registrant being forwarded to the complainant by the Secretary.

(6) The Secretary or the Secretary's designate shall forward the complainant's response, if any, to the registrant complained against.

(7) The registrant complained against may respond in writing to the complainant's further response within ten days of complainant's further response being forwarded to the registrant by the Secretary.

(8) The Secretary or the Secretary's designate shall forward to the complainant any further response received from the registrant complained against.

(9) The Secretary or the Secretary's designate shall refer the complaint to the Complaints Committee, together with any written responses from the registrant complained against and the complainant upon the earliest of the following events occurring:

(a) upon the registrant failing to respond to the written notice issued pursuant to clause (3)(c) within fourteen days following the issuance of the notice;

(b) upon either the registrant or the complainant failing to respond to the response forwarded to either person within the response times set out in subsection (5) or (7); or

(c) upon receipt of the further response of the registrant pursuant to subsection (7). *2009, c. 13, s. 5; 2010, c. 15, s. 2.*

17A (1) Where, in the absence of a complaint, circumstances come to the notice of the Secretary that, in the Secretary's opinion, may constitute grounds for discipline pursuant

to this Act, the Secretary may prepare a report thereon in writing for submission to the Complaints Committee.

(2) The Secretary shall

- (a) forward a copy of the report forthwith after its preparation to the registrant who is the subject of the report; and
- (b) advise the registrant who is the subject of the report that the registrant has the opportunity to provide the Secretary with a written response concerning the report within fourteen days of its being forwarded by the Secretary.

(3) After the expiration of fourteen days, the Secretary or the Secretary's designate shall refer the report to the Complaints Committee together with any written response from the registrant who is the subject of the report.

(4) The Complaints Committee shall deal with such a report as if it were a complaint, and the report must be treated for purpose of this Act and by-laws in the same manner as a complaint. *2009, c. 13, s. 5.*

17B The complaint process must not be used for any extraneous or improper purpose including, but not limited to, use

- (a) for the purpose of harassing a registrant of the Association into providing relief that is beyond that which the member was retained to furnish or that may be more appropriately available through civil litigation or other processes;
- (b) by a party adverse in interest to a client or a registrant complained against, for the purpose of harassing such client or registrant;
- (c) as a form of discovery or for the gathering of information in another proceeding; or
- (d) for commercial gain. *2009, c. 13, s. 5.*

17C (1) The Council shall appoint, from among the members of the Association, a Complaints Committee composed of not fewer than five members.

(2) Members of the Complaints Committee shall be appointed for terms up to and including three years, as the Council determines.

(3) In the case of a vacancy in the Complaints Committee, the Council may appoint another member of the Association to fill the vacancy for such term as the Council determines.

(4) A quorum of the Complaints Committee consists of three members.

(5) The Council shall appoint the Chair and Vice-chair of the Complaints Committee. *2009, c.13, s. 5.*

17D (1) The Complaints Committee shall investigate complaints regarding disciplinary matters concerning a registrant and upon doing so may

- (a) obtain additional information, orally or in writing from the member, the complainant or any other person;
- (b) interview the registrant, the complainant or any other person;

- (c) obtain outside assistance to further the investigation;
 - (d) employ such experts as the Committee considers necessary;
 - (e) undertake such other steps as the Committee determines are required for a thorough investigation.
- (2) The Complaints Committee is not required to hold a hearing or to afford any person an opportunity for a hearing or an opportunity to make oral submissions before making a decision or giving a direction under this Section or Section 17E.
- (3) The Complaints Committee may require a registrant to
- (a) submit to physical or mental examinations by such qualified persons as the Committee designates;
 - (b) submit to an inspection or audit of the registrant's work, products of service and practice by such qualified persons as the Committee designates;
 - (c) undergo such examinations of engineering and allied skills, knowledge and professional practice as the Committee directs to assess the registrant's competency to practise engineering;
 - (d) produce records and accounts kept with respect to the registrant's practice.
- (4) Where a registrant fails to comply with subsection (3), the Complaints Committee may suspend or restrict the registration or licence to practise until the member, person licensed to practise or engineer-in-training complies.
- (5) Where the Complaints Committee has required a registrant to submit to examinations or submit to inspection or audit of the registrant's practice by a qualified person designated by the Committee, the Committee shall provide the member with a copy of any report it receives from the designated qualified person. *2009, c. 13, s. 5.*

17E (1) The Complaints Committee may

- (a) dismiss a complaint if it determines that the complaint is frivolous or vexatious or not advanced in good faith or advanced for an extraneous or improper purpose as identified in Section 17B;
- (b) dismiss a complaint if it finds that there are not reasonable or probable grounds to believe that the registrant complained against has breached the Act or by-laws or is guilty of unprofessional conduct, negligence or misconduct in the execution of the duties of the registrant's office;
- (c) attempt to resolve the complaint if, in the opinion of the Committee, the complaint may be satisfactorily resolved and the resolution of the complaint would properly balance the protection of the public and the rights of the registrant complained against;
- (d) refer a complaint to the Discipline Committee if it finds that there are probable and reasonable grounds to believe that the registrant complained against has breached the Act or by-laws or is guilty of unprofessional conduct, negligence or misconduct in execution of the duties of the registrant's office;

- (e) refer a complaint to the Discipline Committee if it finds that a registrant has been convicted of a criminal offence by any court of competent jurisdiction.
- (2) A referral pursuant to clause (1)(d) or (e) must include a written report containing a summary of the investigation and identification of the issues that the Discipline Committee may wish to determine.
- (3) The Complaints Committee shall provide a copy of its report to Discipline Committee to the registrant complained against.
- (4) The Secretary shall advise, in writing, the registrant and the complainant of the disposition of a complaint by the Complaints Committee. *2009, c. 13, s. 5.*
- 17F (1) A complainant who is not satisfied with the disposition of the complaint by the Complaints Committee may apply to the Chair of the Discipline Committee for a review of the treatment of the complaint by the Complaints Committee by submitting a written appeal to the Secretary within thirty days of the decision to the Complaints Committee.
- (2) An appeal must set out the reasons why the complainant considers the complaint to have received improper treatment.
- (3) Upon receipt of a written appeal of the disposition of a complaint by the Complaints Committee, the Chair of the Discipline Committee shall appoint a member of the Discipline Committee to act as review officer for the purpose of considering the appeal.
- (4) The member appointed as review officer must have had no prior knowledge of the complaint and cannot participate in the disciplinary hearing if the subject-matter of the complaint comes before the Discipline Committee.
- (5) The review officer may request the disclosure of such information regarding the treatment of the complaint as the review officer considers necessary.
- (6) Within thirty days of receiving a written application for review from a complainant, the review officer shall inquire into the treatment of the complaint and
- (a) dismiss the appeal if the review officer considers it to be frivolous or vexatious or not advanced in good faith;
 - (b) dismiss the appeal if the review officer considers the complaint to have been properly treated by the Complaints Committee;
 - (c) remit the complaint back to the Complaints Committee for further consideration if the review officer determines that the complaint was not fairly treated by the Committee; or
 - (d) refer the matter to the Discipline Committee for hearing together with a statement of the issues identified by the review officer if the officer is satisfied that the complaint was not fairly treated by the Complaints Committee and should not be remitted to the Complaints Committee for further consideration. *2009, c. 13, s. 5.*

17G (1) The Council shall appoint not fewer than ten members of the Association to serve on the Discipline Committee.

(2) The Council may appoint not more than two persons who are not registrants to serve on the Discipline Committee.

(3) The Council shall appoint the Chair and Vice-chair of the Discipline Committee.

(4) Members of the Discipline Committee shall be appointed for terms up to three years, as the Council determines.

(5) In the case of a vacancy in the Discipline Committee, the Council may appoint another member of the Association or a person who is not a registrant, as the case may be, to fill the vacancy for such term as the Council determines.

(6) The Vice-chair of the Discipline Committee may do any act assigned herein for the Chair of the Committee if the Chair is unable or unwilling to act.

(7) The Discipline Committee shall receive and process all complaints referred by the Complaints Committee and all appeals from decisions of the Complaints Committee and such other or additional duties as may be assigned it by the Council. *2009, c. 13, s. 5.*

17H (1) Upon referral of a complaint to the Discipline Committee, the Chair of the Committee shall appoint not more than five members of the Committee to serve as a disciplinary panel for the complaint and shall set a time and place for the holding of a hearing to deal with the complaint.

(2) The Secretary shall send notice of the time and place of the disciplinary hearing to the registrant complained against at least thirty days before the hearing, and the notice must advise the registrant that the registrant may appear in person or by or with counsel at the hearing.

(3) The notice must also set forth the nature of the allegations that must be considered by the disciplinary panel at the disciplinary hearing.

(4) The disciplinary panel shall appoint one of its members to serve as chair of the disciplinary panel.

(5) A majority of members of the disciplinary panel is a quorum. *2009, c. 13, s. 5.*

17I (1) At any time prior to the commencement of the disciplinary hearing, the Secretary may, together with the registrant complained against, tender a written joint recommendation for the disposition of the complaint.

(2) The joint recommendation must be conditional upon its acceptance by the disciplinary panel. *2009, c. 13, s. 5.*

and joint recommendation for the disposition of the complaint may be a member of the new disciplinary panel. *2009, c. 13, s. 5.*

17L Notwithstanding that a member of the Complaints Committee or a disciplinary panel has ceased to hold office by reason of lapse of appointment, the member remains seized with the jurisdiction to complete any matter the Committee or panel has commenced and, for this purpose, the member continues to have the same powers, privileges and duties as are provided by this Act or the by-laws. *2009, c. 13, s. 5.*

17M (1) A disciplinary panel shall hold a disciplinary hearing at the time and date specified, and or at adjournment or continuation thereof.

(2) A disciplinary hearing must be held in camera unless the registrant complained against requests a public hearing, and the disciplinary panel, in its discretion, is satisfied that a public hearing is in the interest of the public. *2009, c. 13, s. 5.*

17N The parties to the disciplinary hearing are the Association and the registrant complained against. *2009, c. 13, s. 5.*

17O (1) A disciplinary panel shall hear each case in the manner it considers fit.

(2) Where the registrant complained against fails to appear at a disciplinary hearing, the disciplinary panel may proceed with the hearing in the absence of such person upon receiving proof in the form of a statutory declaration from the Secretary that due notice of the disciplinary hearing was given or mailed to the registrant complained against.

(3) The chair of the disciplinary panel has the right to administer oaths.

(4) The disciplinary panel may require a registrant to

(a) submit to physical or mental examinations by such qualified persons as the Disciplinary Committee designates;

(b) submit to an inspection or audit of the registrant's work, products of service and practice by such qualified persons as the Disciplinary Committee designates;

(c) undergo such examinations of engineering and allied skills, knowledge and professional practice as the disciplinary panel directs to assess the registrant's competency to practise engineering;

(d) produce records and accounts kept with respect to the registrant's practice.

(5) Where a registrant fails to comply with subsection (4), the disciplinary panel may suspend or restrict the registrant's registration or licence to practise until the registrant complies.

(6) Where a disciplinary panel has required a registrant to submit to examinations or submit to inspection or audit of the registrant's practice by a qualified person designated by the disciplinary panel, the disciplinary panel shall provide the registrant with a copy of any report it receives from the designated qualified person. *2009, c. 13, s. 5.*

17P (1) A disciplinary panel has the same powers of taking evidence, compelling the attendance of witnesses, compelling the production of books, paper and documents, and of punishing for contempt or the failure to comply with the orders of the disciplinary panel, as a commissioner appointed under the Public Inquiries Act.

(2) All oral evidence adduced at a disciplinary hearing must be given under oath and recorded.

(3) A certified copy of the transcript of a disciplinary hearing must be made available to the registrant complained against at the registrant's request and expense. *2009, c. 13, s. 5.*

17Q Throughout a disciplinary hearing, the registrant complained against is entitled to all the rights of natural justice, including the right to be represented by legal counsel, to know all the evidence considered by the disciplinary panel, to present evidence and to cross-examine witnesses. *2009, c. 13, s. 5.*

17R (1) Notwithstanding any other provision of this Act, in urgent and compelling circumstances the Chair of the Discipline Committee, upon the advice of the Complaints Committee, may, without a hearing, in the interest of the public, immediately suspend the licence of a registrant or immediately impose restrictions on a temporary basis on the registration of a registrant.

(2) Where the registration of a registrant has been suspended or subjected to restrictions pursuant to subsection (1), the Secretary or the Secretary's designate shall, forthwith, cause written notice of the suspension or restriction to be transmitted to the registrant.

(3) The registrant whose registration has been suspended or subjected to restrictions pursuant to subsection (1) may request a meeting with the Complaints Committee within ten days of the notice issued by the Secretary pursuant to subsection (2) by submitting a request in writing to the Secretary.

(4) The Secretary or the Secretary's designate shall cause the request to be transmitted to the Complaints Committee as soon as practical.

(5) The Complaints Committee shall, upon receipt of the request from the registrant, provide an opportunity for a meeting within ten days of the receipt of the written request and the Committee shall within seven days after the meeting confirm, vary or terminate the suspension or restrictions imposed pursuant to subsection (1) in writing and transmit its decision as quickly as practicable to the Secretary.

(6) The Secretary or the Secretary's designate shall cause the registrant to be advised of the Complaints Committee's decision.

(7) Where the Complaints Committee confirms or varies the suspension or restriction, the matter must be referred to the Chair of the Discipline Committee who shall appoint a disciplinary panel and the panel shall commence a hearing to inquire into the suspension, or restriction and the conduct of the registrant giving rise to the suspension or restriction within thirty days, unless the registrant requests a hearing date that is more than thirty days after the referral of the matter to the Chair of the Discipline Committee.

(8) Where a decision is made pursuant to subsection (1) and the registrant does not request a meeting with the Complaints Committee within ten days of receiving notice of the decision made pursuant to subsection (1), the matter must be referred to the Chair of the Discipline Committee who shall appoint a disciplinary panel and the panel shall hold a hearing within forty days of the date of the decision made pursuant to subsection (1) unless the registrant requests a hearing date that is more than forty days after the decision made pursuant to subsection (1).

(9) For the purpose of calculating time in subsection (3), a registrant shall be presumed to have received notice of the decision made pursuant to subsection (1) two business days after the date the notice of the decision is sent to the registrant by the Secretary or the Secretary's designate by registered mail.

(10) A disciplinary panel may, upon the commencement of a hearing, vary or terminate a suspension or restrictions imposed by the Complaints Committee. *2009, c. 13, s. 5.*

17S (1) Upon completion of a disciplinary hearing, the disciplinary panel may, where it finds that the registrant is not guilty, dismiss the complaint.

- (2) Where a disciplinary panel finds any registrant guilty of
- (a) unprofessional conduct, negligence or misconduct in the execution of the duties of registrant's office; or
 - (b) any breach of this Act or of the by-laws,
- or finds that a registrant has been convicted of a criminal offence by any court of competent jurisdiction, the disciplinary panel may by order
- (c) cancel or suspend the certificate of registration, licence to practise or enrolment of any engineer-in-training;
 - (d) impose terms, restrictions, conditions or limitations on the certificate of registration;
 - (e) reprimand and censure the registrant and, where warranted, direct that the fact of the reprimand or censure be recorded in the register for a prescribed or indefinite period of time;
 - (f) in respect of orders of revocation or suspension, direct that the finding and the order of the disciplinary panel be published in detail or in summary and either with or without including the name of the registrant in the official publication of the Association and in such other manner or medium as the disciplinary panel considers appropriate in the particular case;
 - (g) impose such fine as the disciplinary panel considers appropriate to a maximum of five thousand dollars to be paid by the registrant to the Minister of Finance for payment into the Consolidated Fund;
 - (h) require that a registrant undergo such treatment, testing or assessment as is deemed appropriate;
 - (i) impose such other disposition as it considers appropriate.
- (3) A decision of a disciplinary panel has effect immediately upon service on the member or from such time as the panel may direct.
- (4) A witness in any legal proceeding, whether a party to the proceeding or not, is excused from answering any question as to any proceedings of the Complaints Committee, the Discipline Committee or a disciplinary panel, and is excused from producing any report, statement, memorandum, recommendation, document or information prepared for the purpose of the complaint process, including any information gathered in the course of an investigation or produced for the Complaints Committee, the Discipline Committee or a disciplinary panel.
- (5) Subsection (4) does not apply to documents or records that have been made available to the public by the Association.
- (6) Unless otherwise determined by a court of competent jurisdiction, a decision of the Complaints Committee or a disciplinary panel is not admissible in a civil proceeding other than an appeal or a review pursuant to this Act. *2009, c. 13, s. 5.*
- 17T (1) In this Section, "costs of the Association" include

- (a) expenses incurred during the investigation into a complaint and in preparing for and conducting a hearing; and
 - (b) solicitor and client costs and disbursements incurred during a Complaints Committee investigation, in preparation for and during a disciplinary hearing by the disciplinary panel.
- (2) Where a disciplinary panel has made a finding of guilt or finds that a conviction of a criminal offence has occurred, the disciplinary panel, in addition to those remedies identified in subsection 17S(2), may
- (a) require that a registrant pay to the Association all or a portion of the costs of the Association; and
 - (b) make it a condition of the registration of a registrant that such costs be paid forthwith, or at such time and on such terms as the disciplinary panel may fix.
- (3) The Secretary shall provide the registrant and the complainant and such other persons as the disciplinary panel considers appropriate with a copy of the decision of the disciplinary panel. *2009, c. 13, s. 5.*

17U Where no appeal has been taken pursuant to subsection 17V(1) within the time prescribed for the filing of notices of appeal,

- (a) the disciplinary panel's decision must be reported either on a named or unnamed basis, to members of the Association by publication in such form and in such manner as the Council considers appropriate;
- (b) the disciplinary panel may, in its discretion, order that a notice of suspension or revocation of licence be printed in whatever newspaper and on as many occasions as the disciplinary panel directs;
- (c) in the event that an appeal from an order of the disciplinary panel is taken pursuant to subsection 17V(1), no such notice shall be given unless and until the order of the disciplinary panel is upheld on appeal and the periods for the taking of any further appeals have expired. *2009, c. 13, s. 5.*

17V (1) A registrant subject to an order issued by the disciplinary panel under subsection 17S(2) may, within thirty days of the issuance of the order, appeal from such order to the Supreme Court of Nova Scotia on any point of law.

(2) A registrant who intends to commence an appeal pursuant to subsection (1) shall give ten days prior notice of registrant's intention to appeal to the Secretary.

(3) A registrant who commences an appeal pursuant to subsection (1) shall forthwith serve the notice of appeal on the Secretary or the Secretary's designate.

(4) Upon receipt of a notice of appeal filed pursuant to subsection (1), the Secretary or the Secretary's designate shall prepare and file with the Supreme Court of Nova Scotia a record of the disciplinary hearing which must include a copy of the transcript of the hearing, the decision of the disciplinary panel and the evidence before the disciplinary panel certified by the chair of the disciplinary panel.

(5) Where a matter is appealed to the Supreme Court of Nova Scotia pursuant to subsection (1), the Court may pending its determination of the appeal grant a stay of any order or any part of an order made by the disciplinary panel pursuant to subsection 17S(2), where in its discretion it deems fit. *2009, c. 13, s. 5.*

17W No action for damages lies against the Council, the Secretary, any committee member, officer or employee of the Council

(a) for any act or failure to act, or any proceeding initiated or taken, in good faith under this Act, or in carrying out their duties or obligation as an officer, employee, or committee member under this Act and the regulations; or

(b) for any decision, order or resolution made or enforced in good faith under this Act and the regulations. *2009, c. 13, s. 5.*