



POLICY REPORT
DEVELOPMENT AND BUILDING

Report Date: September 11, 2013
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Meeting Date: September 24, 2013

TO: Vancouver City Council
FROM: Director, Licenses & Inspections/Chief Building Official
SUBJECT: New Edition of the Building By-law (2014 Building By-law)

RECOMMENDATION

- A. THAT Council adopt the 2012 British Columbia Building Code, with amendments to reflect the “Unique to Vancouver Provisions” generally as provided in Appendix C which includes the drafts of Division C Part 1, Division B Parts 10 and 11, subject to further corrections and refinement of the drafts and as provided in other “Unique to Vancouver Provisions” to be added to Divisions A, B and C as the 2014 Building By-law.
- B. THAT Council instruct the Director of Legal Services to bring forward a By-law that repeals Building By-law 9419, except for transitional provisions, creates the 2014 Building By-law referred to in Recommendation A, and takes effect on December 20, 2013 for all Part 3 energy standard provisions of the code and March 1, 2014 for the remaining provisions.
- C. THAT Council amend the Certified Professional By-law by deleting the existing letters of Assurance and replace with the new Letters of Assurance as provided in Appendix B.
- D. THAT Council direct the Chief Building Official to establish a “Building By-law Industry Roundtable” having representation from relevant industry stakeholders determined appropriate by the Chief Building Official to provide feedback and recommendations related to the administration of the Building By-law with an annual report to Council including By-law amendments, if required.
- E. THAT Council direct the Director of Planning and Chief Building Official to report back in 18 months on the feasibility of mandating an accessible path of travel from the street to at least one exterior entrance of all one- and two-

family houses, laneway houses, secondary suites, town houses and stacked town houses type units.

- F. THAT as part of a comprehensive strategy on building retrofit to enable reaching Greenest City GHG goals, Council direct City staff to develop recommendations for Council consideration on energy reporting requirements for larger existing buildings in the City of Vancouver.

REPORT SUMMARY

This report recommends the adoption of a new Building By-law (2014 Building By-law) using the 2012 British Columbia Building Code as the base document as well as further study to improve access for persons with disabilities to the main entry of residential buildings. The proposed new By-law was developed in collaboration with several City of Vancouver departments - Sustainability, Planning and Development Services, Cultural Services, Social Development, Fire Services, Real Estate and Facility Services and Engineering Services. There has been extensive consultation during the By-law development process with the Architectural Institute of BC, Association of Professional Engineers and Geoscientists of BC, Building Owners and Managers Association of BC, Greater Vancouver Home Builders' Association, Homeowners Protection Office as well as a number of manufacturers and the general public. As well, the LGBTQ, Persons with Disabilities, Seniors', and Women's Advisory Committees provided valuable contributions.

The new By-law gives greater clarity to fire and life safety, energy and water efficiency, and accessibility requirements. At the same time the proposed Building By-law maintains existing Council-mandated policies and represents an extensive regulatory review by removing outdated and redundant provisions. This proposed 2014 Building By-law will enable the City to continue to demonstrate building regulatory leadership while at the same time advance key strategic City goals, such as: excellent and efficient public service; green buildings, affordability, livability, inclusivity, safety, and security.

In order to provide continuous improvements to the Building By-law, this report recommends that Council direct the Chief Building Official to establish a "Building By-law Industry Roundtable" to provide feedback on the administration of the By-law with an annual report back, including proposed By-law amendments where required. This report also recommends new Letters of Assurance for the Certified Professional By-law that address liability concerns expressed by the Architectural Institute of BC and the Association of Professional Engineers. Certified Professionals are members of these professional associations.

COUNCIL AUTHORITY/PREVIOUS DECISIONS

Under section 306(a) of the Vancouver Charter, Council may make By-laws to regulate the construction of buildings, and, under section 306(w), may adopt by reference in whole or in part and with any change Council considers appropriate, any code relating to fire safety or energy conservation or affecting the construction, alteration, or demolition of buildings.

In 2010 Council directed the Chief Building Official to develop adaptable housing requirements that were simple and easy to implement at the time of construction.

In March 2007, Council passed a motion directing staff to begin planning for significant, long-

range greenhouse gas (GHG) emission reductions with the eventual goal of becoming a carbon-neutral city.

In June 2007, Council adopted long-range climate protection targets to reduce GHG emissions by 33% from 2007 levels by 2020, and 80% from 2007 levels by 2050.

In September 2007, Council adopted a revised long-range climate protection target to reduce GHG emissions by 80% from 1990 levels by 2050.

In June 2008, as part of the Green Homes Program, Council adopted a set of Building By-law amendments directed at reducing the environmental impacts of new one- and two-family dwellings. The amendments made the Vancouver Building By-law one of the “greenest” building codes for one- and two-family dwellings in North America.

In June 2008 Council adopted a Building By-Law amendment to require the use of ASHRAE 90.1 2007, to improve the performance of all new Part 3 buildings.

In July 2011, Council adopted the Greenest City Action Plan including Goal 3: Lead the World in Green Building Design and Construction. The goal included two targets: (1) require all buildings constructed from 2020 onward to be carbon neutral in operations, and (2) reduce energy use and GHG emissions in existing buildings by 20% over 2007 levels by 2020. One of the high priority actions was to update the Vancouver Building By-law with an aim to increase energy efficiency and reduce GHG emissions.

On June 26, 2013, staff presented to Mayor and Council an Age-friendly Action Plan to help make Vancouver a more safe, inclusive, and engaging city for all seniors. The actions included a review of bylaws to improve accessibility in housing to allow seniors to age in place.

The ability of Vancouver residents to continue to live comfortably and safely in their own homes as they grow older was a dominant theme expressed by participants in the City’s Seniors Dialogues held in Fall 2012.

Earlier this year, one of the recommendations of the Mayor’s Task on Housing Affordability was to streamline and create more clarity in the regulatory process and improve public engagement, including the Building By-law.

CITY MANAGER’S/GENERAL MANAGER’S COMMENTS

The City Manager and General Manager of Community Services recommend approval of Recommendations A to F.

REPORT

Background/Context

The 2010 National Building Code of Canada (NBC) and the 2012 British Columbia Building Code (BCBC) were used to form the City’s proposed 2014 Building By-law. The Province of BC amended the 2010 NBC, developed by the National Research Council of Canada, by inserting provincial variations to form the 2012 BCBC. Likewise, the City is

recommending the “Unique to Vancouver” variations to the 2012 BCBC as generally shown in Appendix C to form the 2014 Building By-law.

As stated in the Policy section of this report, the Vancouver Charter empowers Council to adopt by-laws to regulate the construction of buildings. The Building By-law regulates the construction requirements for buildings as well as the administrative provisions for permitting, inspection, and enforcement of these requirements.

Council’s ability to adopt its own Building By-law is unique in the Province and also unusual in the rest of Canada. It is an important authority which allows Council the opportunity to be responsive to local issues impacting on building safety much more effectively and quickly than other municipalities. This authority supports the City’s ability to achieve key strategic goals through the Building By-law. These key strategic goals relate to the following:

- providing excellent and administratively effective services,
- demonstrating leadership in green buildings,
- supporting a sustainable, affordable, livable and inclusive city, and
- supporting a safe and secure city.

Using this authority, the City of Vancouver has been a leader in adopting a number of building regulations, many of which have eventually been adopted both nationally and provincially. Notable examples of this leadership are: mandatory sprinkler systems, energy efficiency compliance and enforcement processes, rain screen cladding, enhanced accessibility, and by-law upgrades to existing buildings. Many of these requirements have now been emulated in the current editions of the National Building Code of Canada and the British Columbia Building Code. While staff views Council’s authority to enact its own Building By-law as an important asset to the City, there has been consistent industry pressure to simplify and clarify requirements and remove redundant and outdated requirements. Staff have attempted to deal with these concerns, to the greatest extent possible, without impacting relevant Council-mandated policies in the development of this proposed Building By-law.

In addition to the work required to review and analyze the impact of the adoption of the new 2010 NBC and 2012 BCBC, staff carried out a detailed analysis of the current “Unique to Vancouver” requirements (differences between the former BCBC and the current Building By-law) to determine if they were still relevant or if they required further clarification to simplify the permitting process. Through this analysis, many outdated and redundant requirements were removed and greater clarity was added to the By-law. Feedback from internal departments, industry stakeholders, advisory committees and the general public was considered in the preparation of the final version of the 2014 Building By-law.

Strategic Analysis

The “Unique to Vancouver” amendments that form the proposed 2014 Building By-law are discussed below and may be summarized by the following thematic areas:

1. Administrative Requirements
2. Energy and Water Efficiency Requirements
3. Accessibility Requirements (Adaptable Housing)

4. Building By-law Upgrade Requirements for Existing Buildings
5. Temporary Building Requirements
6. Fire and Life Safety Requirements

1. Administrative Requirements

The administrative requirements of the Building By-law provide the legal framework for the administration of the By-law and the obligations of the various parties involved in building construction and the maintenance of existing buildings: the Chief Building Official, Registered Professionals, Contractors, and Building Owners. The intent of this section was not changed during the development process, however it was re-written in order to simplify processes and provide greater clarity. In addition, the penalties and fines section was revised to establish minimum and maximum fines of \$500 and \$10,000 respectively for violations of this By-law. This is consistent with the maximum and minimum fines in most other city By-laws. These new requirements support the City's strategic goal of providing excellent service and being a city that is administratively effective. Since these changes are not considered to be a significant change to the By-law and only reflect current practice, extensive consultations were not carried out on this portion of the proposed By-law. Table 1 provides a summary of the more significant amendments to the administrative portion of the Building By-law and notes the benefits of each change. A more detailed draft of the proposed administrative requirements is provided in Appendix C.

Table 1 - Summary of Significant Administrative Changes to Building By-law

By-law Issue	Current Provision	Proposed Provision	Advantage
Serving Legal Orders	The current By-law requires legal orders to be served by posting the order on the building <u>and</u> sending a copy to the owner by registered mail.	A legal order may be considered served when hand delivered to the registered owner by the Chief Building Official or his or her staff.	Removes redundant processes of mailing and posting orders on buildings when it has been hand delivered to the registered owner.
Enforcement Timelines	No provision in the Current By-law.	Provides the ability for the Chief Building Official to set a time for a property owner to comply with a legal order.	Improves the effectiveness of legal orders to address By-law issues on problem properties.
Extension of Building Permits	The Chief Building Official is only permitted to grant one extension to a building permit. Subsequent extensions must be approved by Council.	The Chief Building Official may extend a building permit twice. <i>(It is rare that a building permit is required to be extended more than once.)</i>	Expedites the building permit extension process while eliminating routine reports to Council for permit extensions.

By-law Issue	Current Provision	Proposed Provision	Advantage
Obligations of Registered Professional	No explicit statement provided.	The By-law will explicitly state that the City can rely on Registered Professionals and Certified Professionals to ascertain that the requirements of the By-law have been met.	Adds greater clarity to the By-law that reflects the current practice.
Minimum and Maximum Fines and Penalties for Building By-law Violations.	Fines range from \$250 to \$10,000.	The minimum and maximum fines have been raised to \$500 and \$10,000 respectively.	Fines aligned with other By-law fines and penalties.

2. Energy and Water Efficiency Requirements

In order to support the City's goal of becoming the greenest city in the world by 2020 and to continue to demonstrate leadership in green buildings, amendments have been made to further protect the environment by increasing energy and water efficiency performance requirements for both newly constructed buildings as well as buildings that are undergoing renovations. Should Council accept these provisions, the Building By-law will set energy efficiency requirements for all building types including all forms of residential, commercial, institutional and industrial buildings.

Since Council approved the Green Homes Program in June 2008, a number of its requirements have become industry standards. As such, the proposed energy-related updates reflect more up-to-date energy performance standards that are cost effective and improve the thermal comfort and durability of homes.

For one-and two-family homes, the proposed By-law updates for new construction are intended to take the first of three incremental steps towards carbon neutral new construction - with future updates planned in 2017 and 2020. Modelled results from a sample of 220 homes built in Vancouver, show a home built in Vancouver under the proposed By-law would cost \$5,200 more, on average, (or 1% of construction costs) but result in 50% fewer greenhouse gases annually than a home built to the current provincial code, and the improved building envelope would provide significantly better durability. The proposed updated would have a payback of less than 10 years.

For commercial Part 3 buildings, staff propose updating the By-law to reference the 2010 version of ASHRAE 90.1. (ASHRAE is the acronym for American Society of Heating, Refrigerating and Air-conditioning Engineers.) ASHRAE is an accepted international design standard for the design of energy efficient electrical and mechanical systems in buildings. This 2010 version was recently adopted as part of the BCBC and is also required in the Ontario Building Code where all new buildings are required to perform 5% better than ASHRAE 90.1 2010. In the last year, ASHRAE 90.1 2010 has also become the new standard in many U.S. cities and states.

The City, in partnership with the Urban Development Institute (UDI) engaged a third party to undertake a costing study to determine the financial impact of this proposed policy on construction costs of the seven most prevalent building types. For each building type, the energy, emissions, and financial performance associated with the adoption of a new building energy code (ASHRAE 90.1-2010) relative to the current code (ASHRAE 90.1-2007) was quantified.

The study shows that on average, upgrading to ASHRAE 90.1-2010 would result in:

- 10% energy savings;
- 13% energy cost savings;
- 7% emissions reductions (0.6 kgCO₂e/m²/year);
- a \$2.70/m² incremental cost (0.13% of construction cost), and
- a two-year payback (by way of energy cost savings) on the capital cost premium.

Table 2 - Costs Impacts based on energy-related updates BTY Costing Study - January 2012

Building Type	Payback on Energy Upgrades	Energy Savings (%)	Incremental Capital Cost (% of Construction cost)	Incremental Capital (\$ per sq. ft.)
High-rise Residential (20 Storey)	2 years	7%	0.04%	\$0.10
Mid-rise Residential (5 Storey)	1 year	5%	0.02%	\$0.06
Mid-rise Mixed Use (with Ground Retail)	2 years	5%	0.05%	\$0.10
Low-rise Commercial (Stand Alone Retail)	2 years	19%	0.17%	\$0.30
High-rise Commercial (17 Storey Office)	2 years	16%	0.10%	\$0.20
Mid-rise Commercial (5 Storey Infill Office)	2 years	17%	0.17%	\$0.31
Wood Frame Mid-rise Residential	1 year	3%	0.04%	\$0.06

Based on these findings, staff recommend that ASHRAE 90.1-2010 be adopted as the energy standard for all new Part 3 construction, as it will result in a reduction in energy consumption, greenhouse gas emissions (GHG), and have economic benefits to Vancouver due to the long term energy savings.

Extensive consultations were carried out with a variety of stakeholders in developing these requirements. Two key concerns were raised. First, Registered Professionals as well as the Urban Development Institute expressed concern that the standard for energy efficiency, ASHRAE 90.1 2010, was not always feasible or cost effective to use for all building types. The UDI encouraged the City to provide other options such as the National Energy Code for Buildings 2011 (NECB 2011). Upon further review by staff it was determined that similar energy performance could be attained in buildings that comply with NECB 2011. As a result, the new Building By-law will allow two options for meeting energy efficiency goals: ASHRAE 90.1-2010 or NECB 2011 subject to minor revisions to ensure consistency between the two standards.

Second, the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC) expressed concern about the requirement for a master switch to turn off all overhead lighting in apartment units located in buildings with 20 or more units. APEGBC was concerned that there could be a potential safety concern if a person activated the master switch when other occupants were still in the apartment unit during night time hours. As a result, staff modified this provision to ensure that access to a reasonable level of lighting is maintained in stairwells and exit corridors when the master light switch is activated. It should be noted that there was broad support from industry stakeholders with respect to the new energy and water efficiency requirements once these concerns were addressed.

Table 3 provides a summary of the new Energy and Water Efficiency Requirements for newly constructed buildings. A more detailed summary is provided in Appendix C.

Table 3 - Summary of Significant Energy and Water Efficiency Requirements to Building By-law

Item	Building Type/Proposed Requirement
1.	One- and two-Family Dwellings and Laneway Houses: <ul style="list-style-type: none"> (a) improved energy efficiency for walls, roofs, windows and skylights (b) energy efficient hot water tanks, boilers and furnaces (c) improved air-tightness (d) electric vehicle charging outlets in garages (e) energy efficient wood burning heating appliances
2.	Commercial and Large Residential (Part 3) Buildings: <ul style="list-style-type: none"> (a) require the most up-to-date energy standards for the design of buildings: ASHRAE 90.1 2010, or NECB 2011 (subject to minor revisions to ensure consistency between the two standards)
3.	All Buildings: <ul style="list-style-type: none"> a. removed current barriers to the use of rain water harvesting systems b. removed barriers to the use of green roofs c. require master light control (green switch) in all apartment units in buildings containing 20 or more units. Overhead lights serving stairs and exit corridors are provided with occupancy based lighting sensor controls d. Sub-metering of natural gas equipment is required in residential buildings with more than 20 units for: <ul style="list-style-type: none"> I. hot water generated by a central hot water generation system, II. natural gas consumption used for air handling systems in common areas, and III. natural gas used for domestic hot water in amenity spaces for pools and spas e. require building design to incorporate metering of services to allow for assessment of energy performance of individual buildings f. require building designers to assess and declare to City officials the anticipated energy performance of the building's proposed design
4.	Non-Residential Part 3 Buildings: <ul style="list-style-type: none"> (a) Require vehicle charging infrastructure for 10% of commercial parking stalls in new construction

3. Accessibility Requirements (Adaptable Housing)

For many years the City of Vancouver has demonstrated exceptional leadership in the area of accessibility. The current accessibility requirements for apartment buildings (commonly referred to as “enhanced accessibility” requirements) exceed that of both the NBC and BCBC. Both the NBC and BCBC only require access from the street to the main entrance of an apartment building and access to an elevator from either the parking area or the main entrance. Our “enhanced accessibility” provisions require that complete access be provided and extend from the street and parking areas to all areas of the building, including apartment units and common amenity areas of the building where an elevator and a public corridor are provided. In addition, our Building By-law requires a number of simple features in apartment units that will allow an apartment to be adapted over time as well as allow for visits from persons with disabilities.

In 2010 Council directed the Chief Building Official to develop By-law requirements that would allow all housing types to be adapted for persons with disabilities over time. The Chief Building Official worked closely with the Persons with Disabilities and the Seniors’ Advisory Committees to develop a number of low-cost features that could be installed in a building at the time of construction in order to allow people to age in place as well as allow visitor accessibility. It should be noted that while the BCBC contains adaptable housing provisions, the BCBC provisions are not as extensive as the ones proposed for this By-law and in addition, they are only optional requirements should a building owner wish to make a dwelling unit adaptable. Unlike this proposal, the BCBC requirements are not mandatory. The adaptable housing provisions proposed for the new 2014 Building By-law strongly support the City’s goal of an affordable, liveable, and inclusive city. Should Council accept these recommendations, the City will demonstrate significant leadership by being the only city in Canada to mandate adaptable housing requirements for such a broad range of housing types.

The Persons with Disabilities and Seniors’ Advisory Committees were supportive of the adaptable housing recommendations being proposed for the new 2014 Building By-law provided that Council direct the Director of Planning and the Chief Building Official to study the feasibility of providing access from the street to at least one exterior entrance of all one- and two-family dwellings, secondary suites, laneway houses, townhouses and stacked townhouse units. The Advisory Committees feel strongly that if people with disabilities cannot access their homes, the benefits of the adaptable housing provisions within the home are not as significant. Staff recommend that Council direct the Director of Planning and the Chief Building Official to carry out this study and report back within 18 months.
(Recommendation E)

Many industry stakeholders expressed concern about the dimensional requirements for interior doors and corridors that were initially proposed. In particular, industry felt that it was overly onerous to require an 865 mm clear opening for interior doors and 1040 mm wide corridors. Staff reviewed these concerns and as a result, recommend that interior doors in homes be built to the same dimensional requirements to that of public buildings: 800 mm. Staff also recommend that the minimum width of corridors in homes be set at 900 mm rather than 1015 mm. It should also be noted that most homes are now being built with minimal corridors with designers opting for a more open concept type of design. Some industry stakeholders expressed concern about the proposal to require stairs within dwelling units to be at least 915 mm in width. For homes, other than laneway houses, staff feel this is a reasonable requirement as manufacturers have indicated that a stair must be at least 915 mm

in width in order to install a mechanical lift. Because it is difficult to obtain the minimum headroom clearance for a stair in a two storey laneway house, staff are not recommending a wider stairway width for laneway houses. The City has recently established zoning and development type requirements that encourage more single level laneway houses rather than two storey laneway houses. As such, staff do not feel it is as important to increase the width of stairs in laneway houses.

There were a number of adaptable housing provisions that were requested by the Advisory Committees that are currently the standard practice in new construction. Therefore, Staff do not recommend that these types of provisions be added to the By-law as there is no need to regulate items that are currently being provided. These items included the following:

- accessible light and control switches (rocker control switches)
- exterior lighting at building entrances
- covered canopy or roof over main entrance

When developing these adaptable housing provisions, staff reviewed one of the provisions in the current Building By-law that allows the use of a mechanical lift to provide access to the main entrance of an apartment building instead of a ramp. Due to recent concerns related to the maintenance of these types of devices and mechanical failures, this is not a reasonable accessibility solution for newly constructed apartment buildings. Therefore, staff recommend that mechanical lifts not be permitted, unless the designer can successfully demonstrate to the Chief Building Official that there is a hardship that cannot be reasonably overcome.

Table 4 provides a summary of the significant adaptable housing proposals that are being recommended for all housing types in the new Building By-law. A more detailed summary is provided in Appendix C.

Table 4 - Summary of Significant Accessibility Requirements (Adaptable Housing)

Item	Building Type/Location in Dwelling Unit	Description of Proposed Requirement
1	Apartment Buildings / Main Entrance	Ban the use of mechanical lifts for access to building entrance unless acceptable to Chief Building Official due to a hardship. Require automatic door openers at the main entry to apartment buildings.
2.	Apartment Building / Public Areas	Require accessible signage for persons with visual disabilities (size, colour, contrast).
3.	All Homes / Kitchens	Require lever faucets on sinks; require waste pipe below kitchen sink to be located to allow future lowering of the kitchen counter.
4.	All Homes / All Rooms	Require electrical outlets to be at least 450 mm above the finish floor, except for locations where floor to ceiling windows are provided.

Item	Building Type/Location in Dwelling Unit	Description of Proposed Requirement
5.	All Homes / Bathrooms	Require lever faucets in bathrooms and reinforcing in walls to allow future installation of grab bars. Require at least one two piece or three piece washroom on the lowest habitable floor depending on the size of the suite. (See Appendix A) Require drains serving bathtubs to be sized and positioned to accommodate a future walk in shower. In wood frame buildings, require additional floor joists to allow for future installation of future walk in shower. Require shower and bath controls to be located in an accessible location (free of obstructions) or off set to allow easy access.
6.	All Homes / Doorways	Require all interior doors within a home to be provided with a clear opening of at least 800mm. Require at least one exterior door and the main entry door to apartment units to be provided with a clear opening of at least 865 mm.
7.	All Homes / Doorway Thresholds	Require bevelled thresholds that are not more than 13 mm at all interior and exterior doors. Note doors serving exterior balconies and basements are exempted from this requirement.
8.	All Homes / Interior Stairways	Require stairways in homes to be at least 915 mm wide and to be provided with an electrical outlet at the top and bottom of the stairs to allow for future installation of a mechanical lift. Due to headroom challenges, laneway houses are exempted from this requirement.
9.	All Homes / Interior Corridors	Require all interior corridors to be at least 900 mm in width.
10.	All Homes / Principal Doors	Require all principal doors providing access to a house or apartment to have accessible door viewers (peep holes) -one at 1067 mm height and a second at 1524 mm height. Where a side light or enhanced building security is provided, this is not required.

4. Building By-law Upgrade Requirements for Existing Buildings

The City's current Building By-law is only one of two Building Codes in Canada that contains upgrade requirements for existing buildings as they are renovated. While the current Building By-law upgrade requirements are reasonable, many industry stakeholders have expressed concern over the inconsistent application of these requirements as well as some confusion in understanding the requirements. To address this concern, staff have completely re-written this section of the By-law and removed any outdated and redundant provisions as well as provided greater clarity to the requirements. As a result, the existing building provisions in the proposed Building By-law are simpler to follow and more reasonable.

Staff are recommending that non-structural type upgrades be introduced to the Building By-law upgrade requirements. Currently the Building By-law only requires structural upgrades to the building's primary structural elements when a building is renovated. Non-structural

upgrades are aimed at preventing injuries from falling hazards such as light fixtures, mechanical equipment, and ceiling tiles during an earthquake. Should Council accept this recommendation, a greater level of life safety will be provided in existing buildings over time.

When the existing building provisions were developed in the early 2000s, energy and water efficiency requirements were not as well developed as they are today. As a result, earlier versions of the Building By-law did not require energy or water efficiency upgrades to existing buildings undergoing a renovation. Should Council accept these recommendations, the Building By-law will now establish minor energy and water efficiency upgrades for all one- and two-family dwelling buildings, based on the value of the renovation with the key updates being home weatherisation requirements for renovations over \$25,000 and attic insulation, where limited attic insulation exists, for renovations over \$50,000.

For all other buildings, the level of energy and water efficiency upgrade will be based on the type of work taking place. The level of upgrade for buildings other than one- and two-family dwellings will be graduated, with minimal upgrades for repair type work and more extensive upgrades for major renovations and reconstruction type projects. The proposed energy and water efficiency upgrade model utilizes the same construct that is in place for fire and life safety, structural and accessibility upgrades to existing buildings.

Staff are currently working on a comprehensive strategy for building retrofits to enable the achieving of our Greenest City goals in regard to GHG emissions. As part of the strategy, when it is brought forward to Council for approval, staff are recommending the development of an energy reporting requirement for larger buildings in Vancouver, modelled on current requirements in New York City, Seattle, San Francisco, Philadelphia, Chicago, Boston and other cities. Such systems in other cities have provided necessary data to reduce energy consumption in existing buildings. Staff will report back to Council with recommendations for how such a system could be implemented in Vancouver, including any Vancouver Charter changes that may be required.

When developing the proposed Building By-law, Staff looked for opportunities to encourage renovations in single room occupancy buildings (SROs). One of the items identified was the lack of kitchen and bathroom facilities in existing SRO buildings. Because the Building By-law can trigger other upgrades to a building when bathrooms and kitchens are added, these types of renovations are often ignored. Currently the Building By-law waives further upgrades to an existing building when sprinkler systems are added, the building envelope is repaired, accessibility features are added to the building and/or the building is seismically upgraded. This waiver is used to encourage these types of upgrades to existing buildings. Therefore in order to improve liveability in SRO buildings, staff recommend that a similar waiver be included for SRO buildings when kitchens or bathrooms are added. A detailed draft of the proposed Building By-law Upgrade Requirements for Existing Buildings section of the By-law is provided in Appendix C.

5. Temporary Building Requirements

Like the NBC and BCBC, the current Building By-law does not establish provisions for temporary type buildings or structures. The provisions in the Building By-law were never envisioned for temporary buildings and, as a result, these requirements are often considered

inappropriate and overly onerous. This concern was what led to the development of an Olympic By-law to regulate the design and construction of the various temporary buildings to support the Winter Games. Staff examined this By-law and determined that many of these requirements should be included in the new Building By-law as they ensured an appropriate level of safety for temporary structures. Should Council accept this recommendation, significant improvements will be made to the permitting process for these types of permit applications. Designers will no longer encounter additional fees for building consultants to address current barriers in the Building By-law and additional time to seek approval for alternative solutions to current Building By-law requirements. A detailed summary of these requirements is provided in Appendix C.

6. Fire and Life Safety Requirements

Through the development process of the new Building By-law, staff removed a number of outdated and redundant fire and life safety requirements and also provided greater clarity to existing requirements, where necessary. A good example of this clarity was the simplification of the existing daycare requirements. These requirements have been streamlined and presented in a table to make it easier for designers to apply and understand. It should also be noted that these revised requirements increase the available building stock for daycares in the city while maintaining an appropriate level of safety.

Staff also used the development process as an opportunity to continue to show building regulatory leadership by introducing new requirements into the By-law that will eliminate the need for common alternative solutions to existing By-law requirements. When a designer is unable to meet a prescriptive requirement of the By-law, the designer has the option of seeking approval from the Chief Building Official for his or her alternative solution request. The alternative solution request process requires the designer to hire consultants to prepare these submissions and the process can add time and cost to the project. The proposed Building By-law now includes a number of common alternative solution approaches that will be available to designers. Should Council accept this recommendation, approximately 25% of the common alternative solution applications may be eliminated.

The new Building By-law will introduce a new provision that will allow medium hazard industrial flex space on the ground floor of new residential buildings provided the fire and life safety systems serving the industrial space are completely independent to the residential portion of the building. This provision establishes a base level of safety for the industrial space that will allow a number of industrial uses to move in and out of the building without significant reconfiguration of the life safety systems.

For years designers have expressed concern about the overly onerous exiting requirements for licensed beverage establishments. The Building By-law currently requires the capacity for exits serving these types of establishments to be twice that of unlicensed spaces. This is not a requirement of the NBC or the BCBC. Considering that the Vancouver's By-law already requires these spaces to be provided with an automatic sprinkler system, staff recommend that this provision be removed and aligned with the BCBC.

In order to address noise concerns, staff recommend changes to the By-law to restrict the venting of mechanical equipment into side yards in one- and two-family neighbourhoods. Should Council approve this recommendation, this type of equipment will be required to vent into the rear yard or through the roof.

The LGBTQ Advisory Committee expressed to Council and the Chief Building Official safety and privacy concerns for transgendered persons using unisex washroom facilities in public buildings. Much of the Advisory Committee's concern related to the lack of gender-neutral washrooms and safety and privacy in these washrooms. To address the number of gender-neutral washrooms, the By-law has been revised to provide further options that encourage the use of unisex washrooms (gender-neutral) in many smaller commercial type building uses. (E.g. retail outlets, coffee shops, restaurants, etc.) While the Building By-law does not prohibit the construction of gender-neutral washrooms, it does not explicitly state that they are permitted. Furthermore, when gender-neutral washrooms are provided, the By-law lacks acceptable safety and privacy requirements. The Chief Building Official worked with both the LGBTQ and Women's Advisory Committees to develop reasonable safety and privacy requirements for gender-neutral washrooms. These requirements address the design of toilet partitions, locking devices as well as a design for the main entry door that will allow persons outside of the washroom to hear if someone is in danger within the washroom. The LGBTQ and Women's Advisory Committees provided valuable input into the development of these requirements and as such support the proposal. It should also be noted that, through the public consultation process there were no concerns with this proposal. Should Council accept these recommendations, the By-law will be the only building code in Canada to clearly state that gender-neutral washrooms may be provided and set reasonable safety and privacy requirements. This proposal further advances the City's goal of an inclusive city in which people feel safe and secure.

Since the proposed Building By-law uses the 2012 BCBC as the base document a number of valuable provisions have been adopted. Some of these include the following:

- Updated design standards for building safety systems and features
- International standard for exit signage - green pictogram "running man"
- Fire and life safety standards for the construction of "assisted living" buildings

A more detailed summary of the proposed Fire and Life Safety requirements is provided in Appendix C.

Affordability Analysis

Staff carried out an analysis of the construction costs associated with the proposed recommendations for the 2014 Building By-law in order to determine the impact on affordability when compared to the current Building By-law. Staff reviewed the impact of the proposed By-law on six types of residential buildings - high-rise, mid-rise, townhouse, single family dwelling, laneway house and single room occupancy building. Table 5 provides a summary of these construction costs per unit for the proposed fire safety; adaptable housing; and energy and water efficiency requirements. The incremental construction costs for the proposed 2014 Building By-law ranges from 0.2% to 2.3% depending on the type of housing unit. As stated earlier in the Energy and Water Efficiency Requirements section of this report, the payback for the proposed energy and water efficiency requirements is one to two years for all building types other than one- and two-family. For one- and two-family it is longer pay back, but less than ten years. It should also be noted that as part of the development of the proposed By-law, many common alternative solutions were included. While this is not reflected in Table 5, this will lower design and construction costs for all buildings.

Table 5 - Summary of Affordability Analysis - Increased Construction Costs per Unit (\$/Unit)

Cost Type	High-Rise Residential	Mid-Rise Residential	SRO	Townhouse	Single Family Residential	Laneway
Fire Safety	100	100	0	150	150	200
Adaptable	480	480	70	660	685	505
Energy/Water	80	80	80	3,275	5,265	2,575
Total	660	660	150	4,085	6,100	3,280
% of Cost of Construction	0.3%	0.3%	0.1%	1.5%	1.4%	2.3%

Implementation of the Building By-law

In adopting the proposed Building By-law, sufficient time should be provided for industry as well as City staff to become familiar with the new requirements. In the past, Council has generally provided a transition period of three to six months between the existing and new Building By-laws. Should Council accept the recommendations in this report, Staff recommend that the proposed Building By-law become effective March 1, 2014. This transition time will allow reasonable time to train industry and staff before the new By-law becomes effective.

Given that the effective date of the BCBC is December 20, 2013 for implementation of ASHRAE 90.1 2010, staff recommend adopting all energy standard provisions of the proposed Part 3 code on December 20, 2013 to align with the BCBC, including the option to use the NECB 2011 rather than ASHRAE 90.1 2010.

If Council accepts these recommendations, staff will develop a training program for both industry and staff in partnership with the Province of BC and the Homeowner Protection Office on the proposed changes to the new Building By-law. Staff will also explore opportunities with local educational institutes to develop a more intensive training program on the new Building By-law, with a particular focus on more challenging areas such as the application of the By-law to existing buildings. The Province is already working with the Architectural and Engineering associations to create training programs for the ASHRAE and NECB energy standards in preparation for the December 20, 2013 implementation date required by the Province, and recommended by City staff.

In order to continue to improve the proposed 2014 Building By-law and ensure that it is meeting City and industry objectives in a timely manner, this report recommends the Chief Building Official establish a "Building By-law Industry Roundtable" (Recommendation D). Should Council accept this recommendation, the Chief Building Official will meet with key industry stakeholders on a regular basis to address concerns and where required, develop and propose By-law changes to further advance operational efficiency and effectiveness of the By-law, while still meeting City and corporate goals. It is also proposed that the Chief Building Official report out on the results of the Roundtable with proposed By-law changes, where required, at least once a year.

Certified Professional By-law

Through the Architectural Institute of British Columbia (AIBC) and the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC), Certified Professionals (CPs) have expressed concerns that the current Letters of Assurance in the Certified Professional By-law require CPs to take responsibility for Building By-law items outside their area of expertise such as structural engineering and building envelope design. The Chief Building Official along with Legal Services worked with AIBC and APEGBC to develop new letters of assurance that address the concerns of CPs. The new letters of assurance more clearly articulate the responsibility of the CP and have been officially endorsed by AIBC and APEGBC as well as the CP Advisory Committee. Staff recommend that the Certified Professional By-law be revised immediately to include the new letters of Assurance as provided in Appendix B.

CONCLUSION

This report recommends a new Building By-law that further advances a number of key Council and City goals such as excellent and administratively effective services; leadership in green buildings; a sustainable affordable, liveable, and inclusive city; as well as a city where people feel safe and secure. Significant consultation and engagement of industry stakeholders, advisory committees and the general public was carried out to develop balanced building regulations with minimal impact on affordability that continues to provide fire and life safety, accessibility and green building leadership. At the same time, this report recommends new letters of assurance for Certified Professionals that addresses liability concerns expressed by the Architectural Institute of BC and the Association of Professional Engineers and Geoscientists of BC for practicing Certified Professionals, while at the same time protecting City Interests. In order to continue to maintain efficient and effective Building By-laws that address the needs of our stakeholders as well as advancing important Council and City goals, this report also recommends the establishment of a Building By-law Industry Roundtable.

* * * * *

Appendix A - Required Number of Fixtures for Bathrooms in Multi-Level Residential Homes

Table 3.8.5.6.
Minimum Fixture Requirements for Bathrooms in
Multi-Level Dwelling Units
(Forming Part of Sentence 3.8.5.6.(1))

Total Floor Area Of Dwelling Unit (m ²)	Bathroom Required on Lower Floor	Minimum Required Fixtures		
		Washbasin	Toilet	Bathtub or Shower
≤40	No			
>40 to 50	Yes	•	•	
>50	Yes	•	•	•

Appendix B - New Letters of Assurance for Certified Professional By-law

	<p style="text-align: right;">Schedule CP-1 Confirmation of Commitment by Owner and Certified Professional</p> <p style="text-align: right;">Certified Professional Program An Alternate Building Permit Process</p>
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- Notes:
1. This letter is endorsed by the Architectural Institute of British Columbia and the Association of Professional Engineers and Geoscientists of British Columbia.
 2. The phrase Building By-law where used in this letter means the Vancouver Building By-law.
 3. Words in italics are given the same meaning as defined in the Vancouver Building By-law.
 4. Words in quotations are defined herein.

To: Chief Building Official Date: _____

Project Address: _____ Building Permit No.: _____

In signing and submitting this document to the *Chief Building Official* the *owner* confirms that the *owner* has authorized the Certified Professional, to undertake "code coordination" and the undersigned Certified Professional ("CP") confirms that the CP will undertake "code coordination" with respect to the above noted project for which a building permit is sought.

"Code coordination" includes the following tasks:

1. act on behalf of the *owner* as the *owner's* representative in matters involving the City of Vancouver in relation to the building permit, related project construction and related occupancy permit;
2. ascertain that the required "Registered Professionals of Record" for the project have been retained to provide *design* and *field review* in accordance with the Building By-law;
3. obtain the necessary letters of Assurance of Professional Design and Commitment for Field Review from the "Registered Professionals of Record" for the project and deliver the originals of same to the *Chief Building Official* when applying for the building permit for the project;
4. obtain the other necessary documents required to support the building permit application and deliver same to the *Chief Building Official* when applying for the building permit for the project;
5. apply for and obtain a building permit for the project in accordance with the process as described in the Building By-law;
6. provide "design review" of the plans and supporting documents prepared by each of the "Registered Professionals of Record" for the project;
7. ascertain that the "Registered Professionals of Record" have incorporated in their plans and supporting documents, the requirements of the "Building By-law" Division A; Division B Parts 1 and 3; and Division C;
8. ascertain that the Division A; Division B, Parts 1 and 3; and Division C Building By-law requirements governing the project are compatible between the plans and supporting documents prepared by each "Registered Professional of Record";
9. provide "site review" of the components of the plans and supporting documents prepared by each of the "Registered Professionals of Record" for the project;
10. keep records of all "site reviews" by the CP and of any corrective action required and taken as a result of these "site reviews". Discrepancies noted during "site reviews" must be tracked and the resolution of these discrepancies noted such that a list of significant unresolved discrepancies can be provided at any time;
11. "monitor field review activities" of the "Registered Professionals of Record";
12. monitor and report on significant events and changes in the project;
13. submit a monthly summary progress report to the *Chief Building Official* during construction of the project;
14. consult with the *Chief Building Official* if any unresolved variances in interpretation of the Building By-law arise between the CP, and the "Registered Professionals of Record";
15. consult with the *Chief Building Official* if any unresolved issues with respect to the Building By-law arise between the CP and the contractor;
16. review relevant shop drawings with respect to the requirements of Division A, Division B, Parts 1 and 3 and

Division C of the Building By-law;

		Date:	_____
Project		Building	_____
Address:	_____	Permit	_____
		No.:	

“Code coordination” (cont’d):

17. notify the *Chief Building Official* in a timely manner of any significant known, unresolved contraventions of the Building By-law or Building Permit requirements;
18. obtain the necessary letters of Assurance of Professional *Field Review* and Compliance from the “Registered Professionals of Record” for the project and deliver the originals of same to the *Chief Building Official* when applying for the occupancy permit for the project;
19. obtain the other necessary documents required to support the occupancy permit application and deliver same to the *Chief Building Official* when applying for the occupancy permit for the project;
20. apply for occupancy approval for the project in accordance with the process as described in the Building By-law; and
21. apply the CP stamp to all relevant documents that are submitted to the *Chief Building Official*. Affixing his or her CP stamp to a document confirms that the CP has provided the relevant portion of “code coordination” applicable to that document.

“Design review” means the activities necessary to ascertain that the design of the project will substantially comply, in all material respects, with the requirements of Division A; Division B, Parts 1 and 3; and Division C of the Building By-law.

“Monitoring field review activities” means ascertaining that the “Registered Professionals of Record” are providing *field reviews* as required by Div C, Part 2 of the Building By-law, and includes keeping records of all *field review* reports prepared by each Registered Professional of Record. The owner will instruct each “Registered Professional of Record” to highlight in his or her field review reports any significant variation from the documents accepted in support of the building permit and any corrective action as needed. The CP will review the variations highlighted in the *field review* reports and notify the *Chief Building Official*, in a timely manner, of significant unresolved variations from the documents accepted in support of the building permit.

“Registered Professional of Record” means a *registered professional* retained to undertake design work and *field review* pursuant to Schedules B and C-B of Subsection 2.7 in Division C of the Building By-law.

“Site review” means the activities necessary in the CP’s professional judgment to ascertain that the construction of the project substantially complies, in all material respects, with the requirements of Division A; Division B, Parts 1 and 3; and Division C of the Building By-law and the requirements of the building permit and monitoring for compliance with the development permit issued for the project.

In addition to “code coordination” the undersigned *owner* and CP also acknowledge that:

1. If the project involves future tenant improvement works, and the base *building* occupancy is not achieved prior to commencement of the tenant improvement works, the involvement of the CP may be required; and,

Project _____ Date: _____
 Address: _____ Building Permit No.: _____

2. The *owner* and the CP are each required to notify the *Chief Building Official* on or before the date the CP ceases to be retained by the *owner*. It is understood that work on the above project will cease as of the effective date of such termination, until such time as a new appointment is made, and a *Stop Work Order* shall be posted upon the said project by the *Chief Building Official*.

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

Owner Information OR Agent for Owner Information

Signature: _____ Name: _____
 Address: _____
 City: _____ Postal Code: _____
 Tel: _____ Fax: _____ Email: _____

NOTE: A ***Certified Professional*** means an Architect or Professional Engineer who has been recognized as qualified as a Certified Professional by the *Chief Building Official* pursuant to the Certification of Professionals By-law.

Certified Professional:

Signature: _____ Name: _____
 Address: _____
 City: _____ Postal Code: _____
 Tel: _____ Fax: _____ Email: _____

(Affix Certified Professional's stamp here)

(Affix Certified Professional's professional seal here)



Schedule CP-2
Confirmation of Completion of
Code Coordination
Certified Professional Program
An Alternate Building Permit Process

- Notes:
1. This letter is endorsed by the Architectural Institute of British Columbia and the Association of Professional Engineers and Geoscientists of British Columbia.
 2. Words in italics are given the same meaning as defined in the Vancouver Building By-law.
 3. Words in quotations are defined in Schedule CP-1.

To: Chief Building Official Date: _____

Project _____ Building _____
Address: _____ Permit No.: _____

I confirm that I have fulfilled my obligations for “code coordination” as outlined in my previously submitted Schedule CP-1 entitled **Confirmation of Commitment by Owner and Certified Professional**.

I enclose the relevant occupancy permit documents as listed on the attached **Occupancy Permit Submission Documents Checklist**.

NOTE:	A Certified Professional means an Architect or Professional Engineer who has been recognized as qualified as a Certified Professional by the <i>Chief Building Official</i> pursuant to the Certification of Professionals By-law.
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Certified Professional:

Signature: _____ Name: _____

Name of Firm: _____

Address: _____

City: _____ Postal Code: _____

Tel: _____ Fax: _____ Email: _____

(Affix *Certified Professional's* stamp here)

(Affix *Certified Professional's* professional seal here)



Schedule CP-3
Confirmation of Tenant Improvement
Compatibility
Certified Professional Program
An Alternate Building Permit Process

- Notes:
1. This letter is endorsed by the Architectural Institute of British Columbia and the Association of Professional Engineers and Geoscientists of British Columbia.
 2. Words in italics are given the same meaning as defined in the Vancouver Building By-law.
 3. Words in quotations are defined in Schedule CP-1.
 4. The phrase "Building By-law" where used in this letter means the Vancouver Building By-law.

To: *Chief Building Official* Date: _____

Base Building Project Address: _____ Base Building Permit No.: _____

Specific Location of Tenant Improvement: _____

I confirm that I have reviewed the drawings on the attached list to ascertain that the tenant improvement design is substantially compatible with the original building by-law concepts for the base *building*.

I confirm that the construction of the base building shell space for this tenant improvement is essentially complete with the exception of the items indicated on the attached list.

NOTE:	A <i>Certified Professional</i> means an Architect or Professional Engineer who has been recognized as qualified as a <i>Certified Professional</i> by the <i>Chief Building Official</i> pursuant to the Certification of Professionals By-law.
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Certified Professional:

Signature: _____ Name: _____
Name of Firm: _____
Address: _____
City: _____ Postal Code: _____
Tel: _____ Fax: _____ Email: _____

(Affix *Certified Professional's* stamp here)

(Affix *Certified Professional's* professional seal here)

Appendix C - Proposed Unique to Vancouver Requirements for 2014 Building By-law

C1 - Draft of Proposed Fire and Lifesafety and Accessibility (Adaptable Housing) Provisions for the 2014 Building By-law.

PROPOSED UNIQUE TO VANCOUVER PROVISIONS TO THE 2014 BUILDING BY-LAW					
ITEM #	PROPOSED BY-LAW AMENDMENT	ADOPTION			MODIFICATION OF PROPOSAL (Resulting from Public Consultation Feedback)
		YES	NO	MOD	
ACCESSIBILITY REQUIREMENTS (ADAPTABLE HOUSING)					
1	Access to homes - Require a wider main entry door to access apartments and homes. (minimum 865 mm clear opening required)	x			
2	Require wider interior door widths within all homes. (minimum 800 mm clear opening required)		x		The initial proposal was to require a minimum clear opening of 865 mm for all interior doors. This proposal was modified to reduce the required clear opening width to 800 mm to address public consultation concerns. (Width is aligned with what is required for public buildings.)
3	Door Thresholds - Require a maximum 13 mm thresholds at interior and exterior doors. This does not include doors providing access to exterior balconies and basements. This only applies to the threshold immediately below an exterior entry door.	x			
4	Door Hardware and Operation - require lever handles on all doors in homes.	x			
5	Require a minimum 900 mm width for interior hallways within homes.		x		Required hallway width was reduced to 900 mm from 1015 mm, as initially proposed, to address industry concerns.
6	Require a minimum 915 mm width for all interior stairs.			x	Because of headroom clearance challenges, this proposal was modified to exempt laneway houses from the additional width requirement. Note: The city has recently put in place zoning and development by-law provisions to encourage single level laneway houses.
7	Require main entry doors serving dwelling units to be provided with an accessible door viewer / peephole (one at 1524 mm and a second accessible viewer at 1067 mm).			x	Slight modification to this provision to address fire protection rating concerns. Exemption also provided to this requirement when the door is provided with a sidelight or enhanced security is provided for the building. Enhanced security for apartment buildings such as visual intercoms and glass sidelights achieve the same intent as the proposal.
8	Require weather protection and exterior lighting at the main entrance to a building.		x		This proposal was dropped as weather protection and exterior lighting is provided for the vast majority of homes and apartments.
9	Establish minimum bathroom fixture requirements for all multi-level dwelling units.			x	The floor area limits have been increased by 10m ² to address industry concerns related to smaller suites.

PROPOSED UNIQUE TO VANCOUVER PROVISIONS TO THE 2014 BUILDING BY-LAW

ITEM #	PROPOSED BY-LAW AMENDMENT	ADOPTION			MODIFICATION OF PROPOSAL (Resulting from Public Consultation Feedback)
		YES	NO	MOD	
10	Require Bath/Shower Controls to be offset from the centre of the bath/shower to allow for easier access.			x	This proposal was modified to provide a performance based requirement rather than a prescriptive one that requires the controls to be off set. The recommended proposal requires controls to be offset or be free of obstructions.
11	Require lever faucets in all bathrooms within homes.	x			
12	Require in-wall reinforcement in all bathrooms to allow for future installation of grab bars.	x			
13	Require an accessible shower or include provisions that allow for easy adaptation of a bath tub to an accessible shower in homes.			x	Provision modified to require additional structural capacity below tubs in wood frame buildings to enable the future installation of an accessible shower and sizing of bath tub drains to accommodate future accessible shower installation.
14	Require lever faucets in all kitchens of homes.	x			
15	Require waste pipes below kitchen sinks to be installed at a maximum height above the floor to allow for future lowering of the kitchen counter.	x			
16	Require at least one living room window to have a lower sill height in order to allow a person in a wheelchair to see out the window. (At least one window sill in the living room must be no more than 800 mm above the floor.)	x			
17	Require accessible building controls in homes - electrical switches, thermostats and intercoms to be located at an accessible height.	x			
18	Require rocker type lighting control switches in all homes.		x		Note: This provision was dropped as it is an industry standard to provide this type of lighting control switches.
19	Require an electrical outlet within 200 mm of a telephone jack.		x		Note: This provision was dropped because technology advances are making answering machines redundant.
20	Require electrical outlets to be located at an accessible height above the floor. (At least 450 mm above the finished floor.)			x	This provision was modified slightly to allow for an exemption where floor to ceiling windows are provided. It is not practical to require electrical outlets to be installed above the floor level when they are adjacent to floor to ceiling windows.
21	Prohibit the use of mechanical lifts as an option to achieve an accessible entrance to apartment buildings.			x	This provision was slightly modified to allow an exemption where the applicant can successfully demonstrate to the Chief Building Official there is an undue hardship due to the site slope.
22	Establish a maximum rate of door closing for all doors with automatic closers.	x			

PROPOSED UNIQUE TO VANCOUVER PROVISIONS TO THE 2014 BUILDING BY-LAW					
ITEM #	PROPOSED BY-LAW AMENDMENT	ADOPTION			MODIFICATION OF PROPOSAL (Resulting from Public Consultation Feedback)
		YES	NO	MOD	
23	Require automatic door openers on entry doors to apartment buildings.	x			
24	Require accessible signage for persons with visual disabilities in all apartment buildings.	x			
FIRE AND LIFESAFETY REQUIREMENTS					
25	Windows, doors, skylights and sealants - harmonize standards with the National Building Code.	x			
26	Structural loads -harmonize standards with the National Building Code.	x			
27	Spatial separation -harmonize standards with the National Building Code.	x			
28	Dangerous Goods/Flammable and Combustible Liquids/Hazardous Activities -harmonize standards with the National Building Code.	x			
29	New occupancy classification for residential care -harmonize standards with the National Building Code.	x			
30	Heating, Ventilation, and Air Conditioning - harmonize standards with the National Building Code.	x			
31	Combustible Penetrations and Plenum Cables - harmonize standards with the National Building Code.	x			
32	Lateral load resistance - harmonize standards with the National Building Code.				
33	Stairs, ramps, handrails and guards - harmonize standards with the National Building Code.	x			
34	Other Part 9 changes 1&2 DU - harmonize standards with the National Building Code.	x			
35	Secondary suites - harmonize standards with the National Building Code.		x		National Building Code provisions for secondary suites not adopted as Vancouver's current provisions are more reasonable and they are now well established.
36	Fire alarms and Exit Signs - harmonize standards with the National Building Code.	x			
37	Temporary occupancy of a street for construction purposes. (Authority changed from the Chief Building Official to the City Engineer.)	x			
38	Sprinkler protection in attached storage garages of laneway houses.		x		Proposal has been dropped as it is not necessary to deviate from accepted national standards.
39	Synchronize fire separations for penetration of fire separations in Part 3 and 9 buildings.		x		Harmonization with BCBC.
40	Sprinkler provisions for Assembly occupancies in basements.	x			
41	Construction of exposing building face of houses to clarify the construction requirements for houses with limiting distance of ≥ 1.0 m < 1.2 m.	x			
42	Flow through device added for automatic sprinkler systems for laneway houses.			x	Proposal modified to a water closet to be attached to the sprinkler system.

PROPOSED UNIQUE TO VANCOUVER PROVISIONS TO THE 2014 BUILDING BY-LAW					
ITEM #	PROPOSED BY-LAW AMENDMENT	ADOPTION			MODIFICATION OF PROPOSAL (Resulting from Public Consultation Feedback)
		YES	NO	MOD	
43	Provide occupant Load factor for exercise rooms.	x			
44	Sprinkler exemption for farm buildings with low human occupancy.		x		Proposal has been modified to harmonize with current National Building Code of Canada and Provincial Building Code requirements.
45	Protection of exterior egress pathway with only one means of egress.	x			
46	Code analysis for buildings divided By property lines.				Further discussion will take place to resolve this issue with Legal Service before enacting the By-law.
47	Eliminate the increased occupant load factor for licensed beverage establishment.	x			
48	Propose new occupancy classification for day care facilities for children.			x	Dropped the new B3 classification and maintain the A2 and C classifications with additional provisions.
49	Codify existing bulletin for electromagnetic locking devices.	x			
50	Noise from mechanical equipment.			x	Proposal modified to only require this for one and two family dwellings. It is not reasonable to require this proposal for multi-family dwellings.
51	Disposal of waste material on construction site.	x			
52	Exposure protection for exit with water curtain.	x			
53	Sprinkler protection for unenclosed exterior balconies of residential buildings.			x	Revised and increased balcony depth to 1200 mm in order to be consistent with accepted national standards.
54	Height of window sills above floors or ground.		x		Proposal has been harmonized with BCBC.
55	Spatial Separation for Storage Garage Serving Two Dwelling Units. (Require a ¾ hour fire separation between parking spaces.)	x			
56	Location of Fire Department Connection for Standpipe Systems from street.		x		Concept moved to Appendix as it is overly onerous to regulate this through the By-law.
57	Farm Buildings to comply with Building By-law.		x		Harmonize with BCBC and add appendix note to clarify.
58	Heat Detectors or Smoke Detectors to be located in elevator hoistways in shaft not Sprinklered.	x			
59	Provide Chief Building Official with authority to extend permit twice without Council approval.	x			
60	Storage garage vehicle ramps widened to accommodate a pedestrian egress path.		x		Harmonized with BCBC.
61	Fire Containment in Group C 4 Storey Buildings.			x	Revised to include a 2h shaft rating through floor assembly.
62	Annunciator and Zone Indication for block or clustered residence units.	x			
63	Permit two dwelling units on top of another dwelling unit for extended firefighters access path to residential suites.	x			
64	Provide roof hydrants.		x		Harmonized with BCBC.
65	Permit Chief Building Official to carry out Emergency Inspections.	x			

PROPOSED UNIQUE TO VANCOUVER PROVISIONS TO THE 2014 BUILDING BY-LAW					
ITEM #	PROPOSED BY-LAW AMENDMENT	ADOPTION			MODIFICATION OF PROPOSAL (Resulting from Public Consultation Feedback)
		YES	NO	MOD	
66	Provisions for Drinking Water Facility in buildings.			x	Remove limitation on facility location.
67	Provide provisions for secondary suites within two-family dwellings.	x			
68	Harmonize safety measures at construction and demolition sites with the Fire By-law.	x			
69	Provide design criteria for the coordination of building safety facilities for firefighters.		x		Harmonize with BCBC.
70	Provide provisions for pest control on demolition sites.	x			
71	Combined gender Washrooms.			x	Minor modification to require locking devices on toilet stalls to make it apparent that stall is occupied or vacant to address privacy concerns expressed by Women's Advisory Committee.
72	Increase flexibility for water closets in assembly occupancies.	x			
73	Develop provisions for multi-use occupancy tenant spaces called Flex Spaces to reduce upgrade requirements with occupancy and tenancy changes.			x	Limit application to newly constructed buildings only.
74	Establish reasonable requirements to allow for green roofs and rain water harvesting systems without alternative solutions.	x			

C2 - Draft of Proposed Division C Part 1 - "Administration Requirements"

DIVISION C PART 1

Administration

Section 1. General

1.1. Interpretation and Intent

1.1.1.1. Interpretation

- 1) This By-law shall, despite any other provision herein, be interpreted in accordance with this Section 1.
- 2) The provisions of this Part apply to Book I (General) and Book II (Plumbing Systems) which comprise this By-law.
- 3) The Schedules attached to this By-law form part of this By-law.
- 4) This Part applies to all *buildings* covered by this By-law. (See Book I, Division A, Article 1.1.1.1.)
- 5) Words and phrases used in Book I, Division C and Book II, Division C that are not included in the list of definitions in Book I, Division A, Article 1.4.1.2. and in Book II, Division A, Article XXXX, shall have the meanings that are commonly assigned to them in the context in which they are used, taking into account the specialized use of terms by the various trades and professions to which the terminology applies.
- 6) Where objectives and functional statements are referred to in Book I, Division C, they shall be the objectives and functional statements described in Book I, Division A, Parts 2 and 3.
- 7) Where acceptable solutions are referred to in Book I, Division C, they shall be the provisions stated in Book I, Division B, Parts 3 through 10.
- 8) Where alternative solutions are referred to in Book I, Division C, they shall be the alternative solutions mentioned in Book I, Division A., Clause 1.2.1.1. (1)(b).

The words and terms in italics in Book I, Division C shall have the meanings assigned to them in Book I, Division A, Article 1.4.1.2. and in Book II, Division A, Article XXXX.

- 9) The symbols and other abbreviations in Book I, Division C and Book II, Division C shall have the meanings assigned to them in Book I, Division A, Article 1.4.1.2. and in Book II, Division A, Article XXXX.

1.1.1.2. Intent

- 1) This By-Law sets standards in the general public interest. It is enacted and retained on the understanding and specifically expressed condition that it creates no duty whatsoever on the city, the *Chief Building Official* or any employee of the city to enforce its provisions, and on the further condition that a failure to administer or enforce its provisions, or the incomplete or inadequate administration or enforcement

of its provisions, shall not give rise to a cause of action in favour of any person whatsoever. The issuance of any *permit*, including an *occupancy permit*, is not a representation, warranty or statement that this By-Law or any other enactment has been complied with, and the issuance thereof in error shall not give rise to a cause of action. Accordingly, words in this By-law defining the responsibilities and authority of the *Chief Building Official* shall be construed as internal administrative directions which do not create a duty.

1.1.1.3. Reliance on Registered and Certified Professionals

1) The *city* and the *Chief Building Official* do not have the resources to deal with matters which fall within the expertise of *registered professionals* and the *city* and the *Chief Building Official* rely on letters of assurance, documents sealed with professional seals, and related documents received from *registered professionals*, and on field reviews carried out by or under the supervision of *registered professionals*, as evidence that the design and *construction of buildings* complies with the provisions of this By-law, including alternate solutions, and complies with any other applicable enactments.

2) The *city* and the *Chief Building Official* do not have the resources to deal with matters which fall within the expertise of *certified professionals* and the *city* and the *Chief Building Official* rely on letters of assurance, documents stamped with professional stamps, and related documents received from *certified professionals*, and on field reviews carried out by or under the supervision of *certified professionals*, as evidence that the design and *construction of buildings* complies with the provisions of this By-law, including alternate solutions and complies with any other applicable enactments

1.1.1.4. No Representation or Warranty

1) No person shall rely on a *permit* issued by the *Chief Building Official* or an inspection carried out by the *Chief Building Official* as establishing compliance with this By-Law or any other enactment or assume or conclude that this By-Law has been administered or enforced according to its terms.

2) All persons shall make such independent investigations as they deem necessary to determine whether a *building* complies with this By-law or any other enactment.

Section 1.2. General Prohibitions

1.2.1. Prohibitions

1.2.1.1. Contravention

1) No person shall fail to comply with an order or notice issued by the *Chief Building Official*.

1.2.1.2. No Work Without Permit

1) No person shall work or authorize or allow work to proceed on a *project* for which a *permit* is required unless a valid *permit* exists for the work to be done.

1.2.1.3. Deviation Needs Prior Approval

1) No person shall deviate from the plans and supporting documents forming part of the *permit*, without having first paid all necessary fees and obtained all necessary permits from the *Chief Building Official*.

1.2.1.4. No Occupancy Without Permission

1) No person shall occupy a *building* or authorize or allow the *occupancy* of a *building* without having first obtained the permission of the *Chief Building Official*.

1.2.1.5. Unsafe Conditions

1) No person who is an *owner* or who is involved in the *construction*, relocation or *occupancy* of a *building* shall cause, allow or maintain any *unsafe condition*. (See Book I, Division C, Appendix A)

1.2.1.6. Work on Public Property

1) No person shall excavate or undertake work on, over or under public property, or erect or place any *construction* or work or store any materials thereon without approval having first been obtained in writing from the appropriate government authority having jurisdiction over such public property. (See Book I, Division C, Appendix A)

1.2.1.7. Property Changes

1) No person shall change or alter the ground elevations or grading of a *building* site without first obtaining the necessary *permits*. (See Book I, Division C, Appendix A)

1.2.1.8. Compliance with By-law and other enactments

1) No person shall work, or authorize or allow work to proceed, or undertake any *building*, *construction*, work or *occupancy* which is in contravention of this By-law or any other enactment.

1.2.1.9. False Information

1) No person shall submit false or incorrect information to the *Chief Building Official*.

1.2.1.10. Tampering with a Posted Notice or Order

1) No person, except for the *Chief Building Official*, shall reverse, alter, deface, cover, remove or in any way tamper with any notice or order which has been posted on or affixed to a *building* pursuant to this By-law.

Section 1.3. Obligations of the Owner

1.3.1. Obligations

1.3.1.1. Right of Entry of Chief Building Official

1) The *owner* shall allow the *Chief Building Official* to enter any *building* or premises at any reasonable time for the purpose of administering and enforcing this By-law.

1.3.1.2. Permit Required

1) The *owner* shall obtain all *permits* or approvals prior to commencing the work to which they relate.

1.3.1.3. Compliance with Permit

1) The *owner* shall comply with all conditions of a *permit* or a staged *permit*.

1.3.1.4. Posting a Permit

1) The *owner* shall ensure that the *permit* authorizing the work, or a true copy of the *permit*, is posted conspicuously on the site or is affixed to a *building* during the entire *project*.

1.3.1.5. Compliance with By-law and other enactments

1) The *owner* shall comply with this By-law and all other applicable enactments.

2) The *owner* shall ensure that all work, *construction*, or *occupancy* is carried out in accordance with this By-law and all other applicable enactments.

3) The *owner* shall ensure that the *occupancy* of a *building* or part of a *building* complies with the *occupancy permit*.

4) The issuance of a *permit*, the acceptance of plans and supporting documents submitted for a *permit*, or the making of inspections by the *Chief Building Official* shall not relieve the *owner* of a *building* from the full responsibility for carrying out the work or having the work carried out in accordance with this By-law and all other applicable enactments.

1.3.1.6. Compliance with Stop Work Order

1) The *owner* shall not carry out work or *construction* or suffer, permit or allow work or *construction* to be carried out in contravention of a stop work order issued by the *Chief Building Official*.

1.3.1.7. Compliance with Development Permit Plans

1) The *owner* shall ensure that the plans and supporting documents submitted for a *permit* conform substantially with the approved Development Permit plans and supporting documents, except that where differences exist, the *owner* shall make application for a "Development Permit Amendment" as required by the Zoning and Development By-law.

1.3.1.8. Owner's Undertaking

1) The *owner* shall submit a completed Owner's Undertaking letter to the *Chief Building Official* in support of and prior to the issuance of a *permit*, in the applicable form set out in Schedules B, C and D of this Part.

1.3.1.9. Letters of Assurance

1) When required by this By-law, the *owner* shall provide to the *Chief Building Official* any applicable letters of assurance in the forms set out in Book I, Division C, Part 2, Schedules A, B-1, B-2, C-A and C-B and in Book I, Division B, Part 5, Schedules D1 and D2.

1.3.1.10. Project Directory

1) The *owner* shall, prior to commencing work, give notice in writing to the *Chief Building Official*, of

a) the name, address and telephone number of

i) the *constructor* or other person in charge of the work,

- ii) the *designer* reviewing the work, and
- iii) any inspection or testing agency engaged to monitor the work, and

2) During the course of the *construction*, the *owner* shall give immediate notice in writing to the *Chief Building Official*, of any change in employment of persons listed in the notice given pursuant to Sentence 1.3.1.10.(1). (See Book I, Division C, Appendix A)

1.3.1.11. Other Notices

1) The *owner* shall give such other notices to the *Chief Building Official* as may be required by the *Chief Building Official*, by this By-law, or by another enactment.

1.3.1.12. Construction Safety

1) Where a *Construction Safety Program* is required by Book I, Division B, Subsection 8.2, the owner shall:

- a) prior to commencing work, ensure that the *Construction Safety Program* has been submitted to the *Chief Building Official*, and
- b) during *construction*, ensure that the *Construction Safety Program* is posted at all times and is amended from time to time in accordance with the requirements of this By-law.

2) Where a *building* is required by Book I, Division C, Subsection 2.2.7. to be professionally designed and reviewed, the *owner* shall, prior to commencing work, ensure that the *contractor* provides a full-time *construction safety officer* at the worksite.

1.3.1.13. Plans Required on Site

1) The *owner* shall ensure that the plans and specifications on which the issuance of the *permit* was based are available at the worksite for inspection during working hours by the *Chief Building Official*.

1.3.1.14. Site Cleared of Debris

1) The *owner* shall ensure that upon completion of demolition procedures, all debris and fill is cleared and the site levelled or graded, to the satisfaction of the *Chief Building Official*.

1.3.1.15. Tests to Establish Compliance

1) Where required by the *Chief Building Official* the *owner* shall make or have made, at the *owner's* expense, tests or inspections, as necessary to establish compliance with this By-law and shall promptly provide a copy of all such tests or inspection reports to the *Chief Building Official*. (See Book I, Division C, Appendix A)

1.3.1.16. Up-to-Date Survey

1) The *owner* shall provide to the *Chief Building Official* a survey, which has been certified by a registered land surveyor not less than 30 days before the date of delivery to the *Chief Building Official*

- a) in the case of an *existing building* and site, if required by the *Chief Building Official* to substantiate the *building* location and size, above, at and below ground level, relative to the site,

b) in the case of an *existing building* and site, if required by the *Chief Building Official* to establish the relationship of the *building* to neighbouring grades, and

c) in the case of all new *buildings*, upon completion of foundations and footings and before any further construction, and the survey must include the elevation of a bench mark on the front of the foundation wall, to substantiate its size, location, and elevation relative to the site and to neighbouring grades.

1.3.1.17. Covering Work Prior to Inspection

1) The *owner* shall not cover work prior to inspection.

1.3.1.18. Request for Inspection

1) The *owner* shall give at least 24 hours notice to the *Chief Building Official* when requesting an inspection of work that is required or ordered to be inspected.

1.3.1.19. Uncovering Work

1) The *owner* shall uncover any work that has been covered without inspection, when required to do so by the *Chief Building Official*. (See Division C, Appendix A)

2) An *owner* who is required to uncover work by the *Chief Building Official* shall uncover and replace such work at the *owner's* expense.

1.3.1.20. Reinspection

1) The *owner* shall apply for a reinspection if, during an inspection of a *project* by the *Chief Building Official*, faulty or incomplete work or faulty materials are discovered.

2) Every applicant for a reinspection of a *project* shall pay the applicable reinspection fees set out in the Fee Schedule, prior to the reinspection.

1.3.1.21. Report of Building, Demolition or Excavation Failure

1) When a *building*, demolition or excavation failure occurs which causes or has the potential to cause injury or loss of life, the *owner* shall

a) immediately report the failure to the *Chief Building Official*,

b) submit a report, if required to do so by the *Chief Building Official*, in accordance with Article 1.5.3.1., and

c) carry out any repairs or remedial work required by the *Chief Building Official*.

1.3.1.22. Removing Unsafe Conditions

1) When a *building* or part thereof is in an *unsafe condition*, the *owner* shall forthwith take all necessary action to put the *building* in a safe condition.

1.3.1.23. Street Use Permit Required

1) Every *owner*, *owner's* agent or *contractor* shall obtain a street use permit from the *City Engineer* prior to excavating or backfilling any portion of a *street* or lane adjacent to the *building* site.

1.3.1.24. Damage to Public Property

1) The *owner* is responsible for the cost of repair of any damage to public property or works located thereon that occurs as a result of undertaking work for which a *permit* or a street use permit was required.

1.3.1.25. Requirements Regarding Street Addresses

1) An *owner* shall not post any number or letter on a *building* or *suite* entry except for a street address or *suite* number that has been designated by the *Chief Building Official*.

2) Every *owner* shall place and maintain the designated street address on the *building* in a place that is easily visible from the *street*, and the address shall be mounted on a contrasting background and shall conform with the minimum character size requirements in Table 1.3.1.1.

Table 1.3.1.1.

Forming Part of Sentence 1.3.1.25.(2)

<i>Building</i> Setback from <i>Street</i>	Minimum Non-illuminated Character Size	Minimum Illuminated Character Size
0 - 15 m	100 mm	80 mm
15 - 20 m	150 mm	100 mm
Greater than 20 m	200 mm	150 mm

3) Where landscaping or other structures obscure the visibility of a *building* from the *street*, the *owner* shall erect on the *building* property within sight of the *street*, a sign not exceeding 0.4 m² displaying the street address.

4) Every *owner* shall place and maintain a designated *suite* number on a contrasting background and of a character size of not less than 25 mm at the *suite* entry. (See also Book I, Division B, Article 3.8.3.13., for design requirements for persons with a visual impairment.)

5) If a *suite* number is assigned to an exterior principal *suite* entry, every *owner* shall place and maintain the designated *suite* number in conformance with this section.

6) Every *owner* shall ensure that designated street addresses and *suite* numbers are made of durable materials and are affixed securely to the *building*.

Section 1.4. Obligations of the Constructor

1.4.1. Obligations

1.4.1.1. Construction Safety

1) The *constructor* shall ensure that all requirements of this By-law relating to *construction* safety are complied with, and shall ensure that every sub-*contractor* of the *project* has retained a *trades safety coordinator* as required by Sentence 1.4.1.1.(2).

2) Every sub-*contractor* shall retain a qualified *trades safety coordinator* whose responsibilities shall include full training of all persons working for the sub-*contractor* at the worksite in safe *construction* and installation practice, as applicable, and who shall provide certification respecting that training on request.

1.4.1.2. Work on Public Property

1) The *constructor* shall ensure that no excavation or other work is undertaken on public property, and that no *building* is erected or materials stored thereon, without first having obtained approval in writing from the appropriate government authority.

1.4.1.3. Compliance with By-law and Other Enactments

1) The *constructor* shall ensure that all work, *building*, *construction*, or *occupancy* is carried out in accordance with this By-law and with all other applicable enactments.

1.4.1.4 Compliance with Stop Work Order

1) The *constructor* shall not carry out work or *construction*, or suffer, permit or allow work or *construction* to be carried out, in contravention of a stop work order issued by the *Chief Building Official*.

Section 1.5. Authority of the Chief Building Official

1.5.1. Administration

1.5.1.1. Administrator

1) The *Chief Building Official* is authorized to administer this By-law.

1.5.1.2. Filing Documents

1) The *Chief Building Official* is authorized to keep copies of applications received, *permits* and orders issued, inspections and tests made and papers and documents connected with the administration of this By-law for such time as is required by law. (See Book I, Division C, Appendix A)

1.5.1.3. Inspection of Records

1) The *Chief Building Inspector* is authorized to provide plans and documents filed pursuant to the provisions of this By-law for inspection, subject to the provisions of the Freedom of Information and Protection of Privacy Act.

1.5.1.4. Fees for Inspection of Records

1) The *Chief Building Official* shall charge a fee as set out in the Fee Schedule, payable in advance, for the inspection of records referred to in Article 1.5.1.3.

1.5.2. Authorities

1.5.2.1. Power of Entry

1) The *Chief Building Official*, and any person authorized to act on behalf of the *Chief Building Official*, may enter any *building* or premises at any reasonable time for the purpose of administering or enforcing this By-law, or if there is reason to believe an *unsafe condition* exists. (See Book I, Division C, Appendix A)

1.5.2.2. Review of Value of Work

1) The *Chief Building Official* may review the value of the proposed work in an application for a *permit* and may substitute a different value, in accordance with Articles 1.6.2.3. and 1.6.2.4., for the purpose of determining applicable *permit* fees.

1.5.2.3. Construction Safety

1) The *Chief Building Official* may review a *Construction Safety Plan* and may require that the *Construction Safety Plan* be changed or amended.

1.5.2.4. Permit Issuance

1) The *Chief Building Official* shall issue a *permit* when the applicable requirements of this By-law have been met.

1.5.2.5. Permit Refusal

1) The *Chief Building Official* may refuse to issue any *permit*

a) if plans or supporting documents are incomplete or do not comply with the provisions of this By-law,

b) if plans or supporting documents contain false or incorrect information, or

c) for any *building, construction, work or occupancy* that would not be permitted by this By-law or by another enactment.

2) The *Chief Building Official* shall provide reasons for the refusal to issue a *permit*, on the request of an applicant or *owner*.

1.5.2.6. Permit with Incomplete Application

1) The *Chief Building Official* may issue a *permit* for a *building* based on an incomplete application if the incomplete information is of a secondary nature and is unavailable at the time of *permit* issuance.

2) If the *Chief Building Official* issues a *permit* pursuant to Sentence 1.5.2.6. (1) the *Chief Building Official* may impose conditions requiring submission of further information by a specified date.

3) The *Chief Building Official* may suspend or revoke a *permit* issued pursuant to Sentence 1.5.2.6. (1), if the holder of the *permit* fails to comply with the conditions imposed by the *Chief Building Official*. (See Book I, Division C, Appendix A)

1.5.2.7. Conditions on Permits

1) The *Chief Building Official* may impose conditions on *permits* including, but not limited to, conditions regarding

a) notifications and notices,

b) safety,

c) health,

d) design requirements,

e) *construction* requirements,

f) timing of *construction*,

g) deadlines for completion of *construction*,

h) reviews and inspections,

i) responsibilities of the *owner, constructor, registered professional and certified professional*,

- j) compliance with this By-law and other enactments, and
- k) use and *occupancy*.

1.5.2.8. Permits for Existing Buildings

- 1) The *Chief Building Official* may issue a *permit* for an existing *building* in accordance with the provisions of Book I, Division B, Part 11, and may impose conditions on the *permit*
- 2) The *Chief Building Official* may permit an alternative solution to the alternative acceptable solutions provided in this By-law for the conversion of an existing *building* if
 - a) the owner demonstrates, to the satisfaction of the *Chief Building Official*, that the level of upgrade required presents an extraordinary hardship for the owner, and
 - b) the owner proposes an alternative solution which achieves the objectives of the alternative acceptable solutions prescribed by this By-law.

1.5.2.9. Combustible Construction for Minor Repairs in Existing Buildings

- 1) Where *additions* and new work are required to be *noncombustible construction* pursuant to Subsection 3.2.2., the *Chief Building Official* may permit minor repairs to existing floor or wall assemblies to be *combustible construction* provided
 - a) the minor repair of the floor assembly does not exceed 5 percent of the *floor area* of the room in which it is located, and
 - b) the minor repair of the wall assembly does not exceed 5 percent of the wall area of the wall plane on which it is located.

1.5.2.9. Permits for Plumbing and Sprinkler Systems

- 1) The *Chief Building Official* may issue a *permit* for a *plumbing system* or *sprinkler system* in accordance with the provisions of section 1.6.3.

1.5.2.10. Permits in Designated Flood Plain

- 1) In lands situated in the area of a *designated flood plain* the *Chief Building Official* may
 - a) require plans and supporting documents to demonstrate that the elevation or design of the *building* incorporates flood construction standards intended to reduce the risk of flood damage,
 - b) require that a covenant acknowledging the risk of flood damage be registered against the land, and
 - c) withhold issuance of a *permit* until the requirements of the *Chief Building Official* have been satisfied.

1.5.2.11. Permit for Staged Construction

- 1) Where a permit for staged construction is applied for pursuant to Subsection 1.6.5., the *Chief Building Official* may authorize the excavation or construction of a portion of a *building*, and may impose conditions to ensure compliance with this By-law, before all the plans and supporting documents for the *building* have been *accepted*, at the risk of the *owner*.

2) The *Chief Building Official* may suspend or revoke a *permit* issued pursuant to Subsection 1.6.5. if the holder of the *permit* fails to comply with the conditions imposed by the *Chief Building Official*. (See Book I, Division C, Appendix A)

1.5.2.12. Minor Revisions to Permit

1) The *Chief Building Official* may accept an application for minor revisions to an existing *permit* if the proposed revisions do not add or delete additional *storeys* or *major occupancy* classifications to or from the *project*.

1.5.2.13. Requirement for New Permit

1) The *Chief Building Official* may require that an applicant for revisions to an existing *permit* apply for a new *permit*, if the proposed revisions would add or delete *floor area*, *storeys*, *dwelling units* or *major occupancy* classifications to or from the *project*.

1.5.2.14. Permit Suspension

1) The *Chief Building Official* may suspend a *permit* by issuing an order to stop work.

1.5.2.15. Permit Revocation

- 1) The *Chief Building Official* may revoke a *permit* if
- a) there is a contravention of any condition under which the *permit* was issued,
 - b) the *permit* was issued in error, or
 - c) the *permit* was issued on the basis of false or incorrect information.

1.5.2.16. Permit Extension.

1) The *Chief Building Official* may extend a *permit* in accordance with this By-law.

1.5.2.17. Designation of Street Addresses

1) The *Chief Building Official* may, at any time, number, renumber or assign a series of numbers or *suite* numbers to any *building*, or part thereof.

2) Upon the issuance of a *building permit*, the *Chief Building Official* shall designate the street address or series of *suite* numbers required for the *building*, or any portion of the *building*.

3) Upon registration of a parcel of land in the Land Title Office, the *Chief Building Official* shall designate the street address or series of numbers required for the parcel.

1.5.2.18. Renumbering of Street Addresses

1) Where an *owner* has requested a renumbering and has paid the applicable fees set out in the Fee Schedule, the *Chief Building Official* may renumber any *building* or *suite* within a *building*, or parcel of land.

1.5.2.19. Proof of Compliance

1) The *Chief Building Official* may direct that tests of materials, equipment, devices, *construction* methods, structural assemblies or *foundations* be made, or sufficient evidence or proof be submitted, at the expense of the *owner*, where such evidence or

proof is necessary to determine whether the material, equipment, device, *construction*, structural assembly or *foundation* condition complies with this By-law.

1.5.2.20. Occupancy Permit for Building at Variance with By-law

1) The *Chief Building Official* may issue an *occupancy permit* for a *building* which varies in a minor respect from the requirements of this By-law if such variation will not substantially interfere with the objectives of this By-law.

1.5.2.21. Occupancy Permit Prior to Completion

1) The *Chief Building Official* may issue an *occupancy permit* to allow the *occupancy* of a *building* or a part thereof for the *approved* use, prior to commencement or completion of the *construction* or demolition work.

2) The *Chief Building Official* may impose conditions on an *occupancy permit* issued in accordance with Sentence 1.5.2.21. (1).

1.5.3. Authorities regarding Unsafe Conditions

1.5.3.1. Report of Failure

1) Where any *building*, *construction* or excavation failure occurs which causes or has the potential to cause injury or loss of life, the *Chief Building Official* may require the *owner* to submit a report which includes

- a) the name and address of the *owner*,
- b) the address or location of the *building*, demolition or excavation,
- c) the name and address of the *constructor*,
- d) the nature of the failure,
- e) the cause of the failure,
- f) a remedial plan to correct the failure, and
- g) a plan to prevent future failure.

1.5.3.2. Hazardous Material

1) The *Chief Building Official* may require that any person supervising or doing work to install or remove a *building* material provide evidence of their training, certification or qualifications, if the installation or removal of a *building* material may create an *unsafe condition* or affect the structural safety or fire protection of a *building*.

1.5.3.3. Order to Remove Unsafe Condition

1) When any *building*, *construction* or excavation or part thereof is in an *unsafe condition*, the *Chief Building Official* may issue a written order to the *owner*, certifying the existence of an *unsafe condition* and requiring correction of any *unsafe condition* found on a *building* site within a specified time.

1.5.3.4. Corrective Measures

1) If the *Chief Building Official* has issued an order in accordance with Article 1.5.3.3. and an *owner* has failed to comply with that order, the *Chief Building Official* may

- a) authorize demolition, removal, posting of security guards or fire wardens, or enclosure of such *building*, *construction*, excavation or part

thereof, at the expense of the *owner*, and may recover such expense in the manner set out in Article 1.5.3.6., and

b) take other measures as may be necessary to protect the public.

1.5.3.5. Immediate Measures

1) When immediate measures must be taken to avoid an imminent danger or risk of accident, the *Chief Building Official* may take such action as is appropriate, without prior notice and at the expense of the *owner*. (See Book I, Division C, Appendix A)

1.5.3.6. Recovery of City Costs

1) The cost of the measures described in Articles 1.5.3.4. and 1.5.3.5. shall be recoverable from the *owner*

a) in any Court of competent jurisdiction, or

b) by entry of such cost in the real property roll with respect to the property and by collection in the same manner as the taxes shown in the real property roll.

1.5.4. Notices and Orders

1.5.4.1. Notices or Orders

1) The *Chief Building Official* may issue in writing such notices or orders as may be necessary to inform the *owner* of a contravention of this By-law, in the manner set out in this By-law.

1.5.4.2. Scope of Orders

1) The *Chief Building Official* may order

a) a person who contravenes any provision of this By-law, to comply with the provision within a specified time,

b) work to stop on a *building* or any part thereof, if such work is proceeding in contravention of a provision of this By-law or another enactment, or if there is deemed to be an *unsafe condition*,

c) the removal of an unauthorized encroachment on public property,

d) the removal of any *building* or part thereof constructed in contravention of a provision of this By-law,

e) the cessation of any *occupancy* in contravention of a provision of this By-law,

f) the cessation of any *occupancy* if an *unsafe condition* exists, and

g) the correction of an *unsafe condition*. (See Book I, Division C, Appendix A)

1.5.4.3. Contents of Notice

1) A notice shall state the nature of any contravention and specify the date or the phase of *construction* by which remedial measures must be completed.

1.5.4.4. Delivery of Notice

1) A notice may be posted on a *building*, and may be delivered by regular mail or by hand to the person listed as the *owner* in the records of the Assessment Authority of British Columbia.

1.5.4.5. Contents of Order

1) An order shall specify any contraventions of this By-law or any *unsafe condition* and may require demolition, removal, or compliance with this By-law, by a specified phase of *construction*, or within a specified time after the date of mailing or posting the order.

2) Despite Sentence (1), an order to stop work, board up or cease *occupancy* shall state the nature of the contravention or *unsafe condition*, and may order the immediate suspension of *construction* or of *occupancy* and the rectification of the contravention or *unsafe condition*.

1.5.4.6. Delivery of Order

1) The *Chief Building Official* may deliver an order

a) by mailing the order by registered mail to the *owner* at the *owner's* address as it appears on the records of the Assessment Authority of British Columbia, and posting the order on the *building* which is the subject of the order, or

b) by delivery of the order by hand to the *owner*.

Section 1.6. Permits, Applications and Fees

1.6.1. Permits

1.6.1.1. When a Permit is Required

1) A *permit* is required before any work regulated by this By-Law is undertaken.

1.6.1.2. Construction without a Permit

1) If *construction* for which a *permit* is required has been commenced before a *permit* has been issued, the *owner* shall

a) make application for any necessary *permits*, and

b) pay to the city, double the fee set out in the Fee Schedule or \$5000 plus the fee set out in the Fee Schedule, whichever is the lesser amount.

2) If *construction* for which a *permit* is required has been commenced before a *permit* has been issued, the *owner* shall, if ordered to do so by the *Chief Building Official*,

a) provide proof that the *construction* complies with this By-law and any other applicable enactments,

b) carry out tests and investigations by independent agencies, at the cost of the *owner*, to determine whether or not the *construction* complies with this By-law,

c) carry out tests and investigations by independent agencies, at the cost of the *owner*, to determine appropriate remedial measures to ensure that the *construction* complies with this By-law,

d) provide to the Chief Building Official, at the cost of the owner, the results of any tests and investigations ordered by the Chief Building Official, and

e) provide documentation to the satisfaction of the Chief Building Official to establish that all remedial measures to ensure the construction complies with this By-law have been completed.

1.6.1.3. Additional Permits

1) In addition to the *permits* required in Article 1.6.1.1., other *permits* and supporting documents necessary for specific *building* components, services and uses, may be required by the *Chief Building Official*.

1.6.2. Application for Permit

1.6.2.1. Owner Requirement

1) To obtain a *permit*, the *owner* shall file an application in writing in the form prescribed by the *Chief Building Official*.

1.6.2.2. Application Requirements

1) Except as otherwise provided in this By-law, every application shall

a) describe the work, *building*, *construction* or and *occupancies* for which the *permit* is required,

b) provide a legal description and city address for the land on which the work is to be done,

c) include plans and other supporting documents which conform with Book I, Division C, Section 2.2.,

d) state the value of the proposed work calculated in accordance with Article 1.6.2.3.,

e) include the requisite *permit* fee, in accordance with Schedule A to this Part,

f) include the appropriate owner's undertaking letter in accordance with Schedules B and C of this Part,

g) include any other plans or supporting documents required by the Chief Building Official to establish that the work, *building*, *construction* or and *occupancy* complies with this By-law or any other enactment, and

h) list the names, addresses and telephone numbers of all *owners*, designers and *constructors*. (See Book I, Division C, Appendix A)

1.6.2.3. Valuation for Permit

1) The value of the proposed work stated on the application for the *permit* shall reflect the total current monetary worth of all proposed materials, *construction* and work related to the *building*.

2) In addition to Sentence (1), the value of the proposed work shall include the total current monetary worth of all labour and all fees and costs incurred for design, investigative testing, consulting services, *construction*, *construction* management,

contractor's profit and overhead, sales taxes, and *construction* insurance related to the *building*.

3) The total current monetary worth referred to in Sentences (1) and (2) shall include the market value of all labour, including unpaid labour provided by an *owner* or volunteer, and the market value of all materials, including donated, recycled or used materials.

4) The total current monetary worth referred to in Sentences (1) and (2) shall include all components of the *building*, notwithstanding the fact that some components of the *building* may be subject to other *permits* and fees.

1.6.2.4. Review of Valuation by Chief Building Official

1) The *Chief Building Official* may review the value of the proposed work stated in an application, using the *Marshall Valuation Method*, and may substitute a different value for the proposed work.

1.6.2.5. Fee Schedule

1) *Permit* fees shall be calculated in accordance with the Fee Schedule to this By-Law, and the fees for *construction* without a *permit* are as outlined in Article 1.6.1.2.

1.6.2.6. No Refund

1) Except as permitted in Article 1.6.2.7. or Article 1.6.3.5., no *permit* fees or part thereof shall be refunded if

- a) *construction* authorized by a *permit* has commenced,
- b) the *permit* has expired pursuant to Article 1.6.6.1., or
- c) the application has lapsed as outlined in Article 1.6.2.8.

1.6.2.7. Partial Refund and Set-off

1) If *construction* authorized by *permit* has not commenced and the *Chief Building Official* approves, the Director of Finance may refund a portion of the fees related to the *permit*, after deduction of any outstanding costs incurred by the *city* in processing the application for the *permit* and in carrying out any work pursuant to Article 1.5.3.4. or Article 1.5.3.5.

1.6.2.8. Lapse of Application

1) Subject to the provisions of Article 1.6.2.8., an *owner* shall comply with all the necessary requirements to complete an application for a *permit* within 6 months after the date of receipt of the application by the *Chief Building Official*.

2) If an *owner* fails to comply with the requirements of Sentence (1), the application for a *permit* shall lapse.

3) An application for a *permit* which has lapsed is expired and shall not be renewed except in accordance with Article 1.6.2.9. (See Book I, Division C, Appendix A)

1.6.2.9. Renewal of Lapsed Application

1) The *Chief Building Official* may renew a lapsed application for a *permit* if the *Chief Building Official* determines that

- a) no more than 3 months have passed since the date the application lapsed, and
- b) the failure to complete the requirements of the original application for a *permit* was reasonable in the circumstances.

2) Despite the provisions of Sentence (1), the *Chief Building Official* shall not renew a lapsed application for a *permit* more than once.

3) An application for a *permit* which has been renewed pursuant to Sentence (1) must comply with any amendments to this By-law made since the date of receipt of the original application by the *Chief Building Official*.

1.6.3. Additional Requirements for Plumbing and Sprinkler Permits

1.6.3.1. Application Requirements

1) The *Chief Building Official* may issue a *permit* for a *plumbing system* or *sprinkler system* if the applicant is authorized to obtain such a *permit* in accordance with the provisions of this Subsection 1.6.3.

1.6.3.2. Permit for Plumbing System

1) The *Chief Building Official* shall only issue a *permit* to construct, extend, alter, renew or repair a *plumbing system* to a licensed *plumbing contractor*.

1.6.3.3. Permit for Sprinkler System

1) The *Chief Building Official* shall only issue a *permit* to construct, extend, alter, renew or repair a *sprinkler system* to a licensed *sprinkler contractor*.

1.6.3.4. Permit to Licensed Contractor

1) Despite the provisions of Sentences 1.6.3.3 and 1.6.3.4, the *Chief Building Official* may issue a *permit* to a licensed *contractor*

- a) to install *sewers, sumps, catch basins*, and water lines outside of a *building*, or
- b) to install backflow devices or other similar protection devices inside a *building*.

1.6.3.5. Permit to Owner

1) Despite the provisions of Article 1.6.3.3, the *Chief Building Official* may issue a *permit* to the *owner* of a *one-family dwelling* to do plumbing work in that *one-family dwelling* if the *owner* is the occupier of the *one-family dwelling*.

1.6.3.6. No Permit for Minor Repairs

1) Despite the provisions of Article 1.6.3.1, no *permit* is required to repair or replace a valve, faucet, *fixture*, *fixture outlet pipe* or *service water heater*, to clear a stoppage, or to repair a leak, if there is no change to any other piping.

1.6.3.7. Requirement for Inspection

1) No person shall use a *plumbing system* or *sprinkler system* until it has been inspected by the *Chief Building Official*.

1.6.4. Applications by Certified Professionals

1.6.4.1. Applications for Permits by Certified Professionals

1) A *Certified Professional* may apply for a *permit* on behalf of an *owner*.

1.6.4.2. Requirements for Permit

1) A *Certified Professional* who applies for a *permit* on behalf of an *owner* must comply with the requirements of Section 1.6 of this By-law.

1.6.4.3. Application Review For Permit

1) The *Chief Building Official* may issue a *permit* based upon a modified review of the drawings and other supporting documents submitted with the application for a *permit* by a *Certified Professional*.

1.6.4.4. Field Review For Permit

1) A *Certified Professional* shall carry out detailed field reviews and shall be responsible for all inspections, supervision and follow-up necessary to support the *construction* authorized by the *permit* and to support the *construction* of the entire *building*.

1.6.4.5. Reduced Fees

1) The *Chief Building Official* may reduce the fees for a *permit* issued to a *Certified Professional*, after a final *occupancy permit* has been issued, if the *Chief Building Official* first determines that, as a result of supervision by the *Certified Professional*, the administrative costs of the *city* in relation to the *permit* have been substantially reduced.

1.6.5. Applications for Staged Construction by Certified Professionals

1.6.5.1. Requirements for Staged Construction

1) The *Chief Building Official* may issue a *permit* to construct a *building* in stages if

a) the applicant for the staged *construction* is a *Certified Professional*,

b) the *Certified Professional* also applies for permission to construct the entire *building*,

c) the *Certified Professional* submits complete plans and all supporting documents for each portion of the work for which a *permit* for staged *construction* is sought, and

d) the *Certified Professional* submits all documents required pursuant to the Certification of Professionals By-law.

1.6.5.2. Owner's Risk

1) The issuance of a staged *permit* creates no obligation on the *Chief Building Official* to issue any other staged *permits* or to issue a *permit* to construct the entire *building*.

2) An *owner* who commences *construction* of a *building* in accordance with a staged *permit* does so at the *owner's* risk.

1.6.5.3. Owner's Responsibility

1) An *owner* who fails to complete the work authorized by a *permit* for staged construction or who fails to comply with the conditions of a *permit* for staged construction shall restore the site to a safe condition, to the satisfaction of the *Chief Building Official*.

1.6.5.4. Application Review for Permit for Staged Construction

1) Where a *Certified Professional* complies with all application requirements for a *permit* for staged construction, the *Chief Building Official* may issue a *permit* for staged construction based upon a modified review of the drawings and other supporting documents submitted for the *permit* for staged construction.

1.6.5.5. Field Review of Staged Construction

1) Where a *permit* for staged construction is issued, the *Certified Professional* shall carry out detailed field reviews and shall be responsible for all inspections and follow-up necessary to support the construction authorized by the *permit* for staged construction and to support the construction of the entire building.

1.6.6. Revisions

1.6.6.1. Revisions to Applications

1) All applications for revisions to the original application shall comply with Article 1.6.2.2.

2) When revisions to the original application result in an increase in the value of the proposed work, the *Chief Building Official* shall review the valuation and recalculate the *permit* fee in accordance with this By-law.

3) When application documents are either incomplete or changed to the extent that an additional plan review is necessary, an additional revision fee shall be charged in accordance with the Fee Schedule to this By-law.

1.6.6.2. Minor Revisions to Permits

1) All applications for minor revisions to the original *permit* shall comply with Article 1.6.2.2. to the extent required by the *Chief Building Official*.

2) When applications for minor revisions to the original *permit* result in an increase in the value of the proposed work, the *Chief Building Official* shall review the valuation and recalculate the *permit* fee in accordance with this By-law.

3) An additional revision fee shall be charged for applications for minor revisions to the original *permit* in accordance with the Fee Schedule to this By-law.

1.6.7. Permit Expiry and Extension

1.6.7.1. Permit Expiry

1) Except as provided in this Subsection 1.6.7., a *permit* shall expire and the rights of the *owner* under the *permit* shall terminate if in the opinion of the *Chief Building Official*

- a) the work authorized by the *permit* is not commenced within 6 months from the date of issue of the *permit*,
- b) the work although commenced is not continuously and actively carried out thereafter, or
- c) work has been substantially discontinued for a period of 6 months. (See Book I, Division C, Appendix A)

1.6.7.2. Application to Chief Building Official for Extension

- 1) An *owner* who wishes to seek an extension of a *permit* shall make application to the *Chief Building Official* prior to the expiry of the *permit*.
- 2) An *owner* who wishes to seek an extension of a *permit* shall submit the application in writing accompanied by the requisite extension fee.

1.6.7.3. Extension of Permit by Chief Building Official

- 1) If the *Chief Building Official* is of the opinion that substantial completion of the work has been prevented because of exceptional circumstances, the *Chief Building Official* may extend the *permit* twice only provided that, in the meantime, no applicable amendments have been made to this By-law.

1.6.7.4. Application to Council for Extension

- 1) An *owner* who has been granted one or two extensions of a *permit* by the *Chief Building Official* may make application to Council for a further extension prior to the expiry of the *permit*.
- 2) An *owner* who wishes to seek an extension of a *permit* from Council shall submit an application in writing to the *Chief Building Official* accompanied by the requisite extension fee.
- 3) The *Chief Building Official* shall forward to Council any application submitted in accordance with this section, together with information and advice to assist Council in considering the application.

1.6.7.5. Extension of Permit by Council

- 1) Council may extend a *permit* for such further period or periods it deems appropriate.
- 2) If Council grants an extension of a *permit*, the *Chief Building Official*, shall endorse the further extension or extensions on the *permit*.

1.6.8. Permits for Temporary Buildings, including Tents and Air-Supported Structures

1.6.8.1. Definition of "Temporary"

- 1) In this Subsection, "temporary" means for a time period not exceeding twelve consecutive months.

1.6.8.2. Compliance with By-law

- 1) Except as otherwise provided in this Subsection or in Book I, Division B, Part 13 of this By-law, no person shall erect a temporary *building*, including a tent or *air-supported structure*, which does not comply with this By-law.

1.6.8.3. Permit Required

1) No person shall erect, or use or occupy a temporary *building*, including a tent or *air-supported structure* without a *permit*.

1.6.8.4. Compliance with Permit Conditions

1) No person erect, or use or occupy a temporary *building*, including a tent or *air-supported structure*, in contravention of the conditions of a *permit*.

1.6.8.5. Application Requirements

1) The application for a *permit* for a temporary *building*, including a tent or *air-supported structure*, shall be accompanied by

a) plans showing the location of the temporary *building*, tent or *air-supported structure* on the site, of all other existing *buildings* on the same property and of all other *buildings* on adjacent property located within at least 10 feet of the property line of the site,

b) *construction* details of the *building*, tent or *air-supported structure*, and

c) a statement by the *owner* indicating the intended use and duration of such use.

2) The application for a temporary *occupancy permit* for a tent or *air-supported structure*, shall be accompanied by documentation sufficient to establish that the tent or *air-supported structure* complies with Book I, Division A, Subsection 3.1.6. of this By-law.

1.6.8.6. Time Limited Permits for Temporary Buildings

1) The *Chief Building Official* may issue a *permit* authorizing the *construction*, use or *occupancy* of a temporary *building*, including a tent or *air-supported structure*, and may attach conditions to any such *permit*, including conditions allowing for selective compliance with the provisions of this By-law, if the *Chief Building Official* determines that the *construction*, use or *occupancy* will exist for a short time, and the circumstances do not warrant complete compliance with this By-law.

1.6.8.7. Permit End Date

1) A *permit* for a temporary *building*, including a tent or *air-supported structure*, shall state the date after which the *permit* is no longer valid.

1.6.8.8. Permit Extension

1) A *permit* for a temporary *building*, including a tent or *air-supported structure*, may only be extended if an extension is granted by the *Chief Building Official* prior to the expiry of the *permit*.

2) An *owner* who wishes to seek an extension of a *permit* for a temporary *building* from the *Chief Building Official* shall submit an application in writing to the *Chief Building Official* accompanied by the requisite extension fee.

3) If the *Chief Building Official* is of the opinion that the temporary *building* complies with the life safety requirements of this By-law, the *Chief Building Official* may extend the *permit* once only, and the *Chief Building Official* may require documentation from registered professionals to verify that the requirements of this By-law are being met.

Section 1.7. Permission to Occupy Buildings

1.7.1. General

1.7.1.1. Occupancy Permit Required

- 1) Except as otherwise provided in this By-law, no person shall occupy or allow the *occupancy* of any *building*, or part thereof unless the *owner* has obtained an *occupancy permit* from the *Chief Building Official*.
- 2) No person shall occupy any *building* for a purpose other than the *occupancy* stipulated in an *occupancy permit* issued by the *Chief Building Official*.

1.7.1.2. Occupancy Permit

- 1) Every *owner* shall obtain an *occupancy permit* from the *Chief Building Official* prior to any
 - a) *occupancy* of a *building* or part thereof after *construction* or *alteration* of that *building*,
 - b) change in the *major occupancy* of any *building* or part thereof, or
 - c) change in the permitted *occupancy* within the same Division of the *major occupancy* Group, where the *occupant load* or the *fire load* has increased. (See Book I, Division C, Appendix A)

1.7.1.3. Exemptions from Occupancy Permit

- 1) Despite the requirements of Articles 1.7.1.1. and 1.7.1.2., an *occupancy permit* is not required for
 - a) *one* or *two-family dwellings*, or
 - b) a change in the permitted *occupancy* within the same *major occupancy* provided the *occupant load* is not increased and no *construction* has taken place.

1.7.1.4. Posting of Lawful Use

- 1) The *Chief Building Official* may post in an appropriate place on any *building* not requiring an *occupancy permit* a notice which describes the uses to which the *building* may be lawfully put.

1.7.2. Occupancy Permit Process

1.7.2.1. Owner Requirement

- 1) An *owner* who wishes to obtain an *occupancy permit*, shall file an application in the form required by the *Chief Building Official*.

1.7.2.2. Application Requirements

- 1) The requirements of Subsection 1.6.2. do not apply to an application for an *occupancy permit* provided such application includes
 - a) where no professional is required by Book I, Division C, Section 2.6., a letter of assurance provided by the *owner* stating that the By-law has been

complied with, the necessary *permits* have been obtained and the *building* conforms to the *accepted* plans,

b) where professional *field review* is required by Book I, Division C, Section 2.6., letters of assurance in the forms set out in Book I, Division C, Schedules C-A and C-B,

c) the anticipated date of completion,

d) the classification of the *building* as to types of *occupancies*,

e) the number of *storeys* in the *building*,

f) the gross *floor area* of each *storey*,

g) the allowable *live loads* for each *floor area*, and

h) such other information as may be required to illustrate the essential features of the *building*.

1.7.2.3. Construction, Fire & Life Safety Systems Inspection

1) The *owner* of a *building* shall call for and coordinate a final inspection of *construction*, fire and life safety systems in the *building*.

1.7.2.4. Requirements prior to Construction, Fire and Life Safety Systems Inspection

1) Every *owner* shall, at least 24 hours prior to the inspection for an *occupancy permit*, submit to the *Chief Building Official* as support for the assurance required in Clause 1.7.2.2. (1)(b)

a) proof of compliance, for all materials, equipment or methods of *construction*,

b) letters of assurance in the forms set out in Book I, Division C, Part 2, Schedules C-A and C-B,

c) a "*Contractor's Material and Test Certificate*", once the *sprinkler systems* have been flushed, inspected and tested to meet NFPA-13 standards,

d) a "*Certificate of Verification*" (or equal) together with the manufacturer's "*Inspection Report*", after the components of all fire alarm systems incorporating annunciator panels, have been inspected and verified to meet the manufacturer's specifications and this By-law, and the whole system or applicable portion thereof, has been tested by the manufacturer,

e) a "*Fire Safety Plan*" and "*Record of Installed Fire Safety Systems*", conforming to the Fire By-law, and

f) pursuant to Book I, Division C, Sentence 2.3.2.1. (4), a letter of assurance from the Fire Protection Consultant, containing the results of a *field review*, that verifies that the special devices or methods forming part of the alternative solution meet the intent of the alternative solution.

1.7.2.5. Requirements during Construction, Fire and Life Safety Systems Inspection

1) The *owner* of every *building* shall have prepared and shall make available for inspection during the final inspection of *construction*, fire and life safety systems in the *building*,

- a) a copy of the plan referred to in Clause 1.7.2.4. (1)(e), reproduced onto durable material,
- b) a copy of the record referred to in Clause 1.7.2.4. (1)(e),
- c) a "Preventive Maintenance and Testing Schedule" supplement, designed for the ongoing operation and testing of the life and fire safety systems, and
- d) a "Maintenance Log Book", designed to list the ongoing tests carried out in connection with Clause (c).

1.7.2.6. Notice of Occupancy or Change Prior to Occupancy

1) Every *owner* shall give notice in writing to the *Chief Building Official*

- a) immediately upon any change in *ownership* or change in the address of the *owner* which occurs prior to the issuance of an *occupancy permit*, and
- b) prior to occupying any portion of the *building*, even if it is to be occupied in stages.

1.7.3. Occupancy Permit for Part of Building under Construction

1.7.3.1. Occupancy Permit for Part of Building

- 1) The *Chief Building Official* may issue an *occupancy permit* for *occupancy* of a part of a *building* which is under *construction* if, in the opinion of *Chief Building Official*, such *occupancy* would not jeopardize life or property.
- 2) The *Chief Building Official* may impose conditions on an *occupancy permit* issued for *occupancy* of a part of a *building* which is under *construction*.
- 3) The *Chief Building Official* may revoke a *permit* issued pursuant to Sentence 1.7.3.1. (1) if the holder of the *permit* fails to comply with the conditions imposed by the *Chief Building Official*. (See Book I, Division C, Appendix A)
- 4) The *Chief Building Official* may revoke a *permit* issued pursuant to Sentence 1.7.3.1. (1) if the *owner* fails to comply with the *permit* relating to that *building* or part of the *building*.

1.7.3.2. No Unsafe Condition

- 1) Should *occupancy* occur prior to the completion of any work being undertaken that requires a *permit*, every *owner* shall ensure that no *unsafe condition* exists or will exist because of the work being undertaken or not completed.

1.7.4. Temporary Occupancy Permit

1.7.4.1. Temporary Occupancy Permit

- 1) The *Chief Building Official* may issue a temporary *occupancy permit* for a temporary use within an existing *building*, or for the limited use of a *building* approved according to Subsection 1.6.8. or as otherwise provided in this By-law.

1.7.5. Re-occupancy Permit

1.7.5.1. Re-occupancy Permit

1) Every *owner* shall obtain a *re-occupancy permit* from the *Chief Building Official* prior to any *occupancy* of a *building* or part thereof in respect of which the *Chief Building Official* has issued an order to cease *occupancy* because of an *unsafe condition*.

Section 1.8. Street Regulations

1.8.1. Projections Over Streets

1.8.1.1. Encroachment Defined

1) In this Section an encroachment means any part of a *building* or related appendage, projecting into the *street*, whether above, at or below ground level, and its total extent shall be the distance, measured at right angles from a vertical plane through the *city* property line (*street* line), to the outermost point of the projection.

1.8.1.2. General

1) No part of any *building* or appendage thereto shall project into a *street*, whether above or below the ground level except for

- a) signs conforming with the Sign By-law, and
- b) features otherwise provided for by this Section or the Encroachment By-law.

1.8.1.3. Encroachment Maintenance

1) All permitted encroachments shall be kept in proper repair and otherwise maintained by the *owner* of the *building*, in a condition satisfactory to the *Chief Building Official* and the *City Engineer*.

1.8.1.4. Encroachment Prohibited

1) No encroachment shall be permitted if it interferes with

- a) a public utility pole, its apparatus or conductor system,
- b) fire fighting or fire rescue work, or
- c) a lamp standard or any *street* furniture authorized or permitted by the *City Engineer*.

1.8.2. Encroachments

1.8.2.1. Existing Encroachments

1) Subject to Subsection 1.8.4., existing *buildings* or appendages which project beyond the *street* line, and which are subject to an encroachment agreement with the *city*, may be maintained without *alteration*.

1.8.2.2. Altered Existing Encroachments

1) A lawful existing encroachment, that is not in conformance with this Section, may be continued if

- a) the encroachment remains lawful,
- b) the encroachment is not altered except to comply with this By-law,

- c) the encroachment, if inadvertently destroyed by more than 50% of its current replacement cost, is reconstructed to comply with this By-law,
- d) the encroachment, if moved for any reason, is thereupon altered to comply with this By-law, and
- e) the encroachment is altered at the request of the *City Engineer* and complies with Subsection 1.8.4.

2) Except for signs which conform to the Sign By-law, any enlargement or substantial *alteration* of an existing encroachment shall constitute a new encroachment and shall

- a) comply with the Encroachment By-law, and
- b) comply with the requirements of this Section.

1.8.2.3. Sign Encroachment

1) A sign which conforms to this Section and the Sign By-law may encroach into a *street*.

1.8.2.4. Door Swing Encroachment

1) Entrance doors or other moveable barriers, whether in the open or closed positions, are not permitted to be an encroachment, except as provided in Subsection 1.8.10.

1.8.3 Permitted New Encroachments

1.8.3.1. General

1) The requirements in this Subsection apply to new encroachments and *alterations* to existing encroachments.

1.8.3.2. Dimensions and Clearances

1) Unless restricted by other provisions of this By-law, all new encroachments shall comply with the *construction*, clearance and dimension requirements of Subsections 1.8.5. to 1.8.10.

1.8.3.3. Removal of Encroachments

1) A part of a structure permitted as an encroachment into a *street* shall be constructed so that the removal of the encroachment may be made without causing the *building* to become structurally unsafe and without compromising the integrity of *fire separations* and protection from the weather.

1.8.3.4. Agreement for New Encroachments

- 1) Despite Article 1.8.1.4. and except for signs, all new encroachments shall
 - a) comply with the Encroachment By-law, and
 - b) comply with the requirements of this Section.

1.8.3.5. Encroachments Over Narrow *Streets*

1) Unless permitted by this Section or by resolution of Council, there shall be no new encroachment of a *building* or part of a *building* into any *street* which is 10 m or less in width.

1.8.3.6. Permit Refusal

1) The *Chief Building Official* may refuse to issue a *permit* for *construction* which includes an encroachment related to a *building* if such encroachment does not conform with the Encroachment By-law.

1.8.4. Removal and Rehabilitation Required by the City Engineer

1.8.4.1. Removal

1) The *owner* of land from which any *building* or part of a *building* encroaches into a *street* shall repair, alter or remove such encroachment when required by the *City Engineer* in accordance with the provisions of the Encroachment By-law.

1.8.4.2. Rehabilitation After Removal

1) When any encroachment is removed, the *owner* shall

a) fill all *excavations* with compacted *soil* and restore the sidewalk, *street* and ground surrounding the encroachment to the same condition as the adjacent area and to the satisfaction of the *City Engineer*, and

b) finish the exterior of the *building* so that the integrity of all structural systems, *fire separations* and protection from the weather is maintained to the satisfaction of the *Chief Building Official*.

1.8.5. Areaway Construction

1.8.5.1. Areaway Defined

1) In this Subsection an areaway means an underground *building* or structure which encroaches into public property and serves an adjacent *building* to which the areaway may or may not be attached.

1.8.5.2. Areaway Approval

1) The *Chief Building Official* shall refuse to issue a *permit* for an areaway unless the areaway has been approved by the *City Engineer*.

1.8.5.3. Structural Integrity

1) All areaways shall be constructed to the satisfaction of the *City Engineer* with sufficient reinforced concrete walls and roofs to retain the surface of the *street* and its superimposed *live loads* and surcharges.

1.8.5.4. Surface Construction

1) An areaway which has all or a portion of its structure exposed at the sidewalk surface shall

a) be constructed of *noncombustible* materials,

b) be provided with solid non-slip surfaces, and

c) not extend above the *street* or sidewalk surface.

1.8.6. Cornices and Ornamentation

1.8.6.1. Cornice Defined

- 1) In this Subsection, a cornice means the ornamental moulding projecting horizontally at the top of a wall or column, and usually concealing the gutter.
- 2) On short over-hanging roofs the decorative structural brackets which support the roof decking and gutter also constitute a cornice.

1.8.6.2. Coping Defined

- 1) In this Subsection, a coping means the top protective layer of a wall or *chimney*, exposed to the weather, usually constructed of brick, stone or metal, and designed to shed water away from the wall face immediately adjacent to and under the coping.

1.8.6.3. Construction

- 1) Except as permitted in Sentence (3), all cornices, belt courses and other minor architectural trim such as water tables, copings, column capitals and bases, including their connections and supports which project beyond the wall face of a *building*, shall be constructed of *noncombustible* materials, and if constructed of metal, shall be not less than 0.56 mm in thickness.
- 2) The principal cornice or roof eave at or near the top of a wall shall conform to Sentence (1) and Article 1.8.6.4.
- 3) Where the roof construction is permitted to be of wood, the *Chief Building Official* may also permit the cornice to be of wood provided
 - a) the cornice consists only of roof members cantilevered over the *street* and is covered only on the top side with roof deck, and
 - b) the underside of the cornice is left exposed, with no boxed-in soffit.

1.8.6.4. Projections

- 1) Where a *street* is at least 10 m wide, cornices, belt courses and other architectural trim such as water tables, lintels, window and door sills, copings and pediments may project over a *street*
 - a) not more than 75 mm where the distance from the lowest point of the projection to the *street* level immediately below is less than 2.75 m, and
 - b) not more than 915 mm where the distance from the lowest point of the projection to the *street* level immediately below is 2.75 m or more.
- 2) Where a *street* is less than 10 m wide, the architectural features referred to in Sentence (1) may only project over the *street* provided the distance from the lowest point of the projection to the *street* level immediately below is not less than 4.5 m, and provided the projection does not interfere with overhead public utilities.
- 3) Despite Sentences (1) and (2), no projection permitted under this Article shall exceed 915 mm.
- 4) Oriel or bay windows shall not project into the *street* except that *alterations* may be made to such existing windows provided they project not more than 600 mm beyond the *street* line, they are not less than 4.5 m above the *street*, and the *street* on which the projection fronts is not less than 10 m in width.

1.8.7. Awning and Marquee Construction

1.8.7.1. Awning Defined

1) In this Subsection, an awning means a light detachable structure which is made of fabric, sheet metal or other relatively flexible material entirely supported from a *building* by a fixed or retractable frame attached to the *building*.

1.8.7.2. Marquee Defined

1) In this Subsection, a marquee means a light, detachable structure, similar to an awning, which is made of fabric, sheet metal or other relatively flexible material, and which is entirely or partially supported from the ground by a fixed frame.

1.8.7.3. Attachments

1) No electrical wiring, illuminated device, electrical equipment or apparatus shall be attached to or incorporated in an awning or marquee, except that drive mechanisms required for the operation of collapsible awnings and attachments to the structural frame may be permitted where approved by the *Chief Building Official*.

1.8.7.4. Structural Design

1) Except as permitted in Sentence (3), the structural framing members of awnings and marquees, and their connections to the supporting *building* or structure shall be designed in conformance with Book I, Division B, Division 4.

2) All structural components of awnings and marquees shall be *noncombustible* or aluminum.

3) A fabric covered retractable awning shall be designed to withstand the wind, rain, snow, and seismic design loads which would apply when the awning is closed and need not be designed to withstand the wind, rain, snow, and seismic design loads which would apply when the awning is open.

1.8.7.5. Clearances

1) The horizontal clearance between any projections or support of an awning or marquee shall be not less than 600 mm from the outer face of any roadway curb.

2) No portion of an awning or marquee shall be less than 2.75 m above the level of the public sidewalk or established grade, except that where the sidewalk or established grade below the awning or marquee slopes more than 0.1 m over the length of the awning or marquee, the clearance may be not less than 2.6 m and any soft fringe associated with it, when made of canvas, cloth or other similar material, may have a clearance of not less than 2.3 m.

1.8.7.6. Combustible Material Requirements

1) Where *combustible* textiles are used, awnings and marquees shall be flameproofed to conform to the appropriate requirements for resistance to fire as set out in CAN/ULC-S109, "Standard for Flame Tests of Flame-Resistant Fabrics and Films", or NFPA 701, "Standard Method of Fire Tests for Flame Propagation of Textiles and Films", 2004 edition.

2) No *combustible* textiles shall be used on an awning which is above the second *storey* of a *building* and which is attached to an exterior wall required to be of *noncombustible construction*.

3) Marquees which are fabricated from *combustible* materials shall comply with the requirements of Book I, Division B, Subsection 3.1.6. regarding spatial separation from *buildings*, except that this sentence does not apply to marquees which only cover doorways.

1.8.7.7. Vertical Height

1) Except as otherwise *accepted* by the *Chief Building Official*, the vertical dimension of the front and sides of an awning or marquee shall not exceed 3.65 m at any point, and shall not span *unprotected openings* in separate *fire compartments*.

1.8.8. Canopy Construction

1.8.8.1. Canopy Defined

1) In this Subsection, a canopy means a rigid, roof-like structure supported from the *building*, which may be below the level of the main roof line of the *building* and projecting beyond the *building* face.

1.8.8.2. Material Requirements

1) Except as permitted in Sentence 1.8.8.4.(2), all canopies shall be

- a) constructed of *noncombustible* materials, unless the *building* or its exterior wall is permitted to be of *combustible construction*,
- b) supported entirely from the *building*, and
- c) constructed so that their removal can conform to Sentence 1.8.3.3.(1).

2) The deck or roof of every canopy shall be constructed of

- a) wired or laminated safety glass,
- b) metal not less than 0.56 mm in thickness, or
- c) where permitted in Sentence (1), of wood plank not less than 60 mm in thickness, covered on the top and on the soffit with metal or other *noncombustible* material, and constructed and fire stopped to the satisfaction of the *Chief Building Official*.

1.8.8.3. Structural Design

1) All canopies and their connections to the supporting structure shall be designed in conformance with Book I, Division B, Part 4.

1.8.8.4. Clearances

1) The vertical distance from the soffit or underside of a canopy and the sidewalk shall be not less than 2.75 m, and the horizontal distance from the canopy to the outer face of the sidewalk curb shall be not less than 60 mm, except that where the distance from the soffit or underside of the canopy to the sidewalk exceeds 3.65 m, the canopy is permitted to extend to the outer face of the curb.

2) Except where constructed entirely of *noncombustible* materials or where protected in an acceptable manner, canopies shall be not less than 600 mm from an adjoining property line or the projection thereof into the *street*.

1.8.8.5. Vertical Height

1) Except where otherwise *accepted* by the *Chief Building Official*, the vertical dimension of the front and sides of a canopy shall not exceed 3.65 m at any point and the canopy shall not span *unprotected openings* in separate *fire compartments*.

1.8.8.6. Canopy Drainage

1) Except where otherwise allowed by the *City Engineer*, a canopy roof shall be provided with a drainage system conforming to Book I, Division B, Part 7 and shall drain to the *building* drain system.

2) Required downpipes for canopies, if acceptable, may project not more than 75 mm into the street.

1.8.8.7. Existing Canopy

1) The *City Engineer* may allow an existing canopy to remain if the *City Engineer* determines that it will not endanger or interfere with traffic, utilities or *city works*.

1.8.9. Projecting Mechanical Apparatus

1.8.9.1. Limited Encroachment

1) Exterior hose connections for fire-fighting equipment, ventilation intakes and outlets, *chimneys* and air conditioners shall not project into the *street* unless specifically allowed by the *City Engineer*.

2) A fire alarm bell or gong may project up to 300 mm over a street but not less than 2.60 mm above the sidewalk level or established building grade.

1.8.10. Emergency Exits

1.8.10.1. Stairways and Fire Escapes

1) Stairways and balconies for fire escapes, where permitted by the *Chief Building Official* and where located on a wall abutting or fronting on a *street*, may project into the *street* a distance not exceeding 1.2 m provided the lowest part of the stairway or balcony, including its brackets or supports, is not less than 4.5 m above the *street* grade.

1.8.10.2. Emergency Exit Doors

1) Emergency *exit* doors which are designed, to the satisfaction of the *City Engineer*, with the intention of reducing normal pedestrian and vehicular traffic hazards may project not more than 300 mm into a *street* which is not less than 10 m in width.

Section 1.9. Temporary Occupancy of a Street for Construction Purposes

1.9.1. General Requirements

1.9.1.1. Permit Required

1) A person wanting to temporarily occupy a *street*, or part thereof, or occupy the air space above a *street* or part thereof, in connection with, or incidental to the *construction* or maintenance of any *building*, shall make application for a street use permit for temporary *occupancy* to the *City Engineer*.

1.9.1.2. Liability Disclaimer

1) An application for the temporary *occupancy* of a *street* for the purpose described in Article 1.9.1.1. shall contain, in a form satisfactory to the Director of Legal Services, an undertaking of the *owner* to save harmless the *city* against all claims, liabilities, judgments, costs and expenses in consequence of, or in any way incidental to the granting of such *occupancy*.

1.9.1.3. No Occupancy Without Permit

- 1) No person shall occupy any *street* or part thereof for the *construction* or maintenance of any *building* without a street use permit issued by the *City Engineer*.
- 2) The fees payable for the issuance of a street use permit shall be as set out in the Fee Schedule.

1.9.2. Overhead Construction

1.9.2.1. Permit Required

1) The *occupancy* of the air space above a *street* by a swing scaffold or *construction* hoisting device shall be subject to the requirements of Subsection 1.9.1.

1.9.2.2. Prevention of Public Entry

1) The *street* under such swing scaffold or *construction* hoisting device shall be fenced, roped off or otherwise protected against public entry in a manner approved by the *City Engineer*.

1.9.3. Public Safety

1.9.3.1. Public Protection Required

1) No person shall construct, alter or repair any *building* unless a fence or covered way as required in Book I, Division B, Part 8 for the safety of the public has been first erected to the satisfaction of the *Chief Building Official*.

2) The Chief Building Official may modify the requirements of Sentence (1) when satisfied that the location of the construction is sufficiently protected or remote from public areas.

1.9.3.2. Barricade Permit Required

1) If the barricades described in Sentence 1.9.3.1.(1) are to occupy part of the *street*, the requirements for a *permit* in Subsection 1.9.1. shall apply.

Section 1.10. Addressing Buildings and Parcels of Land

1.10.1. Numbering System

1.10.1.1. Numeric Designation

1) Numbering for *buildings*, *suites* within a *building* or parcels of land shall be numeric.

1.10.1.2. East and West Designation

1) Numbers shall run in series, increasing in numeric value in a westerly direction from the west side of Ontario Street and Carrall Street and increasing in numeric value in an easterly direction from the east side of Ontario Street and Carrall Street.

1.10.1.3. North and South Designation

1) Numbers shall run in series, increasing in numeric value in a northerly direction from the north side of Dundas Street and increasing in numeric value in a southerly direction from the south side of Dundas Street.

1.10.1.4. East and West Street Numbering

1) *Buildings* on the north side of *streets* running in an east or west direction shall have odd numbers, and *buildings* on the south side of such *streets* shall have even numbers.

1.10.1.5. North and South Street Numbering

1) *Buildings* on the west side of *streets* running in a north or south direction shall have odd numbers, and *buildings* on the east side of such *streets* shall have even numbers.

1.10.1.6. Multiple Suite Numbering

1) Where a *building* contains multiple addressable *suites*, numbering on *floor areas*, within the *building*, shall be assigned in an increasing numeric order and in a clockwise manner.

1.10.1.7. Principal Buildings

1) Every principal *building*, *secondary suite* and *laneway house* on a site shall be assigned a separate street address where sufficient street addresses are available.

2) In the case where three street addresses are available for a site containing a principal *building*, *secondary suite* and a *laneway house*, the first available street address shall be assigned to the principal *building*, the second available street address shall be assigned to the *secondary suite*, and the third available street address shall be assigned to the *laneway house*.

3) In the case where only two street addresses are available for a site containing a principal *building*, *secondary suite* and a *laneway house*, the first available street address shall be assigned to the principal *building* and the *secondary suite* with *suite* number 1 assigned to the principal *building* and *suite* number 2 assigned to the *secondary suite*. The second available street address shall be assigned to the *laneway house*.

4) In the case where only one street address is available for a site containing a principal *building*, *secondary suite* and a *laneway house*, the same street address shall be assigned to the principal *building*, *secondary suite* and the *laneway house* with *suite* number 1 assigned to the principal *building*, *suite* number 2 assigned to the *secondary suite* and *suite* number 3 assigned to the *laneway house*.

1.10.1.8. Exterior Principal Suite Entry

1) Every *suite* with an exterior principal entry shall be assigned a separate street address.

2) Where sufficient street addresses are not available for every *suite* with an exterior principal entry, a *suite* number shall be assigned to every *suite*.

SCHEDULE A

FEE SCHEDULE

Current Fees

PART A - BUILDING

1. The fees hereinafter specified shall be paid to the City with respect to and upon the application for the issue of a PERMIT as follows:

(a) Except as provided for in Clause (b) for the CONSTRUCTION of any BUILDING, or part thereof:

When the estimated cost of the work, being the valuation referred to in Article 1.8.2.3. of Book I, Division C and Book II, Division C of this By-law, does not exceed \$5,000 or for the first \$5,000 of the estimated cost of the work..... \$120.00

For each \$1,000, or part thereof, by which the estimated cost of the work exceeds \$5,000 but does not exceed \$50,000 \$8.10

For each \$1,000, or part thereof, by which the estimated cost of the work exceeds \$50,000 \$4.05

(b) For the installation, CONSTRUCTION, re- construction, ALTERATION or repair of, or ADDITION to, any CHIMNEY, FIREPLACE, INCINERATOR, VENTILATING SYSTEM, AIR- CONDITIONING SYSTEM, or HEATING SYSTEM, the fee shall be in accordance with Clause (a), except that a fee shall not be charged when the cost of such work is less than \$500

(c) For a permit for temporary OCCUPANCY of a part of a STREET, or of the AIR SPACE immediately ABOVE a part of a STREET, in accordance with Section 1.9. of Book I, Division C and Book II, Division C of this By-law, the daily fee shall be for each 10 m² or part thereof, of STREET or of AIR SPACE part thereof, of STREET or of AIR SPACE immediately above such STREET to be occupied \$2.49

Subject to a minimum fee of..... \$84.00

(d) For an OCCUPANCY PERMIT not required by this By-law but requested \$87.00

(e) For the demolition of a BUILDING, not including a ONE-FAMILY DWELLING, which has at any time since November 1, 1986 provided RESIDENTIAL OCCUPANCY, subject to Section 3:

For each DWELLING UNIT \$1,000.00

For each sleeping room in a multiple conversion dwelling, hotel or other BUILDING, which is or has been a principal dwelling or residence of a person, family or household..... \$1,000.00

(f) For the demolition of a ONE-FAMILY DWELLING, which has at any time since November 1, 1986 provided RESIDENTIAL OCCUPANCY, subject to Section 3 \$1,000.00

(g) For the repair of building envelope pursuant to requirements of Book I, Division B, Part 5 for any residential building Nil

2. The fees hereinafter specified shall be paid to the City as follows:

(a) For a required permit inspection for compliance with this By-Law which cannot be carried out during normal working hours and where there is a request to carry out the inspection after hours, the fee to be based on the time actually spent in making such inspection, at a minimum inspection time of four (4) hours, including traveling time:

For each hour or part thereof.....\$228.00

(b) For a plan review where an applicant requests in writing that the review be carried out during overtime:

For each hour or part thereof.....\$240.00

(c) For each special inspection of a BUILDING or structure to determine compliance with this By-law, and in respect of which no specific fee is otherwise prescribed, the fee to be based on the time actually spent in making the inspection:

For each hour or part thereof.....\$160.00

(d) For each REINSPECTION made necessary due to faulty work or materials or incomplete work requested to be inspected.....\$160.00

(e) For each inspection of a drainage tile system:

For a one- or two-family residence\$199.00

For all other drain tile inspections:

When the estimated cost of the CONSTRUCTION of the BUILDING, being the valuation referred to in Article 1.6.2.3. of Book I, Division C and Book II, Division C does not exceed \$500,000\$370.00

When the estimated cost of the work exceeds \$500,000 but does not exceed \$1,000,000\$621.00

When the estimated cost of the work exceeds \$1,000,000\$711.00

(f) For a review of records pertaining to a BUILDING to provide the status of outstanding orders and other matters concerning the BUILDING:

For a one- or two-family residence	\$195.00
For all other BUILDINGS	\$391.00
(g) For enabling the viewing of a plan of a BUILDING or a copy of the plan	\$32.00
(h) For supplying a copy of a plan of a BUILDING, for each page.....	\$9.60
(i) For a request to renumber a BUILDING	\$711.00
(j) For the extension of a BUILDING PERMIT where requested in writing by an applicant pursuant to Article 1.6.7.1. of Book I, Division C and Book II, Division C	50 percent of the original BUILDING PERMIT fee to a maximum of \$298.00
(k) For the extension of a building permit by Council where requested in writing by an applicant pursuant to Article 1.6.7.4. of Book I, Division C and Book II, Division C	\$999.00
(l) For review of plans, specifications, building materials, procedures or design methods for the purpose of revisions to an application or a permit in accordance with Article 1.5.2.11. and section 1.6.6. of Book I, Division C and Book II, Division C	
where the PERMIT relates to a ONE-FAMILY DWELLING or a SECONDARY SUITE	\$160.00
plus for each hour, or part thereof, exceeding one hour	\$160.00
where the PERMIT relates to any other BUILDING	\$490.00
plus for each hour, or part thereof, exceeding one hour	\$249.00
(m) For each RE-OCCUPANCY PERMIT after rectification of an UNSAFE CONDITION and related By-law violations.....	\$149.00
(n) For review of plans, specifications, building materials, procedures or design methods for the purpose of new construction under Article 2.3.2.1. of Book I, Division C	
for a single application.....	\$704.00
for two applications	\$1,370.00
for three or more applications.....	\$1,810.00
(o) For review of plans, specifications, building materials, procedures or design methods for the purpose of acceptance of existing conditions with mitigating features	

for a single application.....	\$440.00
for two applications	\$830.00
for three or more applications.....	\$1,080.00
(p) For review by the alternative solution review panel.....	\$2,160.00
(q) For review of a resubmission or revised submission made under Clauses (n) or (o) of this Section 2	\$243.00

3. Upon written application of the payor and on the advice of the General Manager of Community Services, the Director of Finance shall refund to the payor, or a designate of the payor, the fees paid pursuant to Clauses (e) and (f) of Section 1:

- (a) for all demolished dwelling units in a building that will be replaced by a social housing or co-operative development that has received a Project Commitment Letter from the British Columbia Housing Management Commission or the Canada Mortgage and Housing Corporation; and
- (b) for each demolished dwelling unit that has been replaced by a dwelling unit occupied by rental tenants and not created pursuant to the Strata Property Act.

PART B - PLUMBING

Every applicant for a Plumbing PERMIT shall, at the time of application, pay to the City the fees set out hereunder:

1. INSTALLATIONS

For the Installation of:

One, two or three FIXTURES	\$160.00
Each additional FIXTURE	\$50.00

Note: For the purpose of this schedule the following shall also be considered as FIXTURES:

- Every "Y" intended for future connection;
- Every ROOF DRAIN, swimming pool, dishwasher, and interceptor;
- Every vacuum breaker in a lawn sprinkler system; and
- Every back-flow preventer

Alteration of Plumbing (no FIXTURES involved):

For each 30 metres of piping or part thereof	\$226.00
For each 30 metres of piping or part thereof, exceeding the first 30 metres	\$64.00
Connection of the City water supply to any hydraulic equipment	\$86.00

2. INSPECTIONS OF FIRELINE SYSTEMS:

Hydrant & Sprinkler System:

First two inspections for each 30 m of water supply pipe or part thereof \$226.00

Each additional inspection for each 30 m of water supply pipe or part thereof ... \$94.00

Sprinklers:

First head, one- or two-family dwelling..... \$258.00

First head, all other buildings \$548.00

First head, renovations to existing sprinkler systems \$160.00

Each additional head, all buildings (no limit on number) \$2.70

Firelines:

Hose Cabinets..... \$30.00

Hose Outlets \$30.00

Wet & Dry Standpipes \$30.00

Standpipes \$30.00

Dual Check Valve In-flow Through Devices..... \$30.00

Backflow Preventer \$153.00

Wet & Dry Line Outlets:

Each connection..... \$30.00

NOTE: A Siamese connection shall be considered as two dry line outlets.

Each Fire Pump..... \$241.00

Each Fire Hydrant..... \$74.00

3. RE-INSPECTIONS

Each re-inspection due to faulty work or materials..... \$160.00

4. SPECIAL INSPECTIONS

Each inspection to establish fitness of any existing fixture for each hour or part thereof \$160.00

An inspection outside normal working hours and at a minimum inspection time of four (4) hours, including traveling time, for each hour or part thereof..... \$228.00

5. BUILDING SEWER INSPECTIONS

First two inspections for each 30 m of BUILDING SEWER or part thereof.....\$199.00

Each additional inspection for each 30 m of BUILDING SEWER or part thereof....\$102.00

SCHEDULE B



Note: To be submitted with the application for a Building Permit

Building By-Law

"OWNER'S UNDERTAKING"

The Chief Building Official
City of Vancouver
453 West 12th Avenue
Vancouver, B.C.
V5Y 1V4

Date (Month Day Year)

Dear Sir:

RE: Property Address _____
Building Permit Application No. _____

In consideration of the City accepting and processing the above application for a building permit, and as required by the Building By-law, the following representations, warranties and indemnities are given to the City.

1. (a) If an individual is the owner:
() That I am the owner of the above property, or

(b) If a corporation is the owner of the property,
() That _____ is the owner of the above property.
(Name of Corporation)
2. The owner will comply with, and cause those employed for this project to comply with all applicable by-laws of the City of Vancouver and other statutes and regulations in force in the City of Vancouver relating to the development, work, undertaking or permission in respect of which this application is made.
3. The owner fully understands the requirements herein, and acknowledges full responsibility for carrying out the work, or gives assurance that the work will be carried out, in accordance with all by-laws governing the construction of the building. The owner understands and acknowledges that the issuance of any permit, including an Occupancy Permit, or the inspection or approval or passage of work by the City is not a representation or warranty that any by-law has been complied with and the owner remains responsible at all times to assure compliance. The Owner has read and understands Article 1.1.1.2. and Article 1.3.1.5. of Division C Book I and Book II of the Building By-law which are set out on the reverse side hereof.
4. The owner hereby agrees to indemnify and save harmless the City of Vancouver and its employees from all claims, liability, judgments, costs and expenses of every kind including negligence which may result from the failure to comply fully with all by-laws, statutes and regulations relating to any work or undertaking in respect of which this application is made.
5. Where used herein the words "work" or "undertaking" in respect of which this application is made, the owner understands this to include all electrical, plumbing, mechanical, gas and other works necessary to complete the contemplated construction.

Owner's Undertaking (continued) Property Address. _____

Building Permit No _____

6. I am authorized to give these representations, warranties, assurances and indemnities to the City of Vancouver.

This Owners' Undertaking is executed by the owner this _____ day of _____, _____.
(Day) (Month) (Year)

1. Where owner is an individual: Signed and delivered in the presence of:
Owner's Signature _____
Owner's Name _____
(PRINT) Witness's Signature _____
Witness's Name _____
(PRINT)
Witness's Address _____

2. Where owner is a corporation: Signed, sealed and delivered in the presence of:
Name of Corporation _____
Per: Witness's Signature _____
Authorized Signatory _____
Name _____
(PRINT) Witness's Name _____
(PRINT)
Witness's Address _____

3. Where owner is a partnership: Signed, sealed and delivered in the presence of:
Name of Partnership _____
Per: Witness's Signature _____
Authorized Signatory _____
Name _____
(PRINT) Witness's Name _____
(PRINT)
Witness's Address _____

Building By-law Article 1.1.1.2. Intent

1) This By-Law sets standards in the general public interest. It is enacted and retained on the understanding and specifically expressed condition that it creates no duty whatsoever on the city, the Chief Building Official or any employee of the city to enforce its provisions, and on the further condition that a failure to administer or enforce its provisions, or the incomplete or inadequate administration or enforcement of its provisions, shall not give rise to a cause of action in favour of any person whatsoever. The issuance of any permit, including an occupancy permit, is not a representation, warranty or statement that this By-Law or any other enactment has been complied with, and the issuance thereof in error shall not give rise to a cause of action. Accordingly, words in this By-law defining the responsibilities and authority of the Chief Building Official shall be construed as internal administrative directions which do not create a duty.

Article 1.3.1.5. Compliance with By-law and other enactments

- 1) The owner shall comply with this By-law and all other applicable enactments.
- 2) The owner shall ensure that all work, construction, or occupancy is carried out in accordance with this By-law and all other applicable enactments.
- 3) The owner shall ensure that the occupancy of a building or part of a building complies with the occupancy permit.
- 4) The issuance of a permit, the acceptance of plans and supporting documents submitted for a permit, or the making of inspections by the Chief Building Official shall not relieve the owner of a building from the full responsibility for carrying out the work or having the work carried out in accordance with this By-law and all other applicable enactments.

SCHEDULE C



Note: To be submitted with the application for a Building Permit

**Building By-law
“OWNER’S UNDERTAKING FOR TENANT
IMPROVEMENTS”**

The Chief Building Official
City of Vancouver
453 West 12th Avenue
Vancouver, B.C.
V5Y 1V4

Date (Month Day Year)

Dear Sir:

RE: Property Address _____
Building Permit Application No. _____

In consideration of the City accepting and processing the above application for a building permit from _____ (the “Tenant”), a tenant of the above-mentioned property, and as required by the Building By-law, the following representations, warranties and indemnities are given to the City.

1. (a) If an individual is the owner:
() That I am the owner of the above property, or

(b) If a corporation is the owner of the property,
() That _____ is the owner of the above property.
(Name of Corporation)
2. The owner will use its reasonable efforts to require the tenant to comply with, and cause those employed for this project to comply with all applicable by-laws of the City of Vancouver and other statutes and regulations in force in the City of Vancouver relating to the development, work, undertaking or permission in respect of which this application is made.
3. The owner understands and acknowledges that the issuance of any permit, including an Occupancy Permit, or the inspection or approval or passage of work by the City is not a representation or warranty that any by-law has been complied with the owner remains responsible at all times to use its reasonable efforts to require compliance by the tenant. The owner has read and understands Article 1.1.1.2. and Article 1.3.1.5. of Division C Book I and Book II of the Building By-law which are set out on the reverse side hereof.
4. The owner hereby agrees to use its reasonable efforts to require that the tenant does indemnity and save harmless the City of Vancouver and its employees from all claims, liability, judgments, costs and expenses of every kind including negligence which may result from the failure to comply fully with all by-laws, statues and regulations relating to any work or undertaking in respect of which this application is made.
5. Where used herein the words “work” or “undertaking” in respect of which this application is made, the owner understands this to include all electrical, plumbing, mechanical, gas and other works necessary to complete the contemplated construction

Owner's Undertaking (continued) _____
(Tenant Improvements) _____
Property Address _____
Building Permit Application No. _____

6. I am authorized to give these representations, warranties, assurances and indemnities to the City of Vancouver.

This Owners' Undertaking is executed by the owner this _____ day of _____, _____.
(Day) Month (Year)

1. Where owner is an individual: Signed and delivered in the presence of:
Owner's Signature _____ Witness's Signature _____
Owner's Name _____ (PRINT) Witness's Name _____ (PRINT)
Witness's Address _____

2. Where owner is a corporation: Signed, sealed and delivered in the presence of:
Name of Corporation _____
Per:
Authorized Signatory _____ Witness's Signature _____
Name _____ (PRINT) Witness's Name _____ (PRINT)
Witness's Address _____

3. Where owner is a partnership: Signed, sealed and delivered in the presence of:
Name of Partnership _____
Per
Authorized Signatory _____ Witness's Signature _____
Name _____ (PRINT) Witness's Name _____ (PRINT)
Witness's Address _____

Building By-law Article 1.1.1.2. Intent

1) This By-Law sets standards in the general public interest. It is enacted and retained on the understanding and specifically expressed condition that it creates no duty whatsoever on the city, the Chief Building Official or any employee of the city to enforce its provisions, and on the further condition that a failure to administer or enforce its provisions, or the incomplete or inadequate administration or enforcement of its provisions, shall not give rise to a cause of action in favour of any person whatsoever. The issuance of any permit, including an occupancy permit, is not a representation, warranty or statement that this By-Law or any other enactment has been complied with, and the issuance thereof in error shall not give rise to a cause of action. Accordingly, words in this By-law defining the responsibilities and authority of the Chief Building Official shall be construed as internal administrative directions which do not create a duty.

Article 1.3.1.5. Compliance with By-law and other enactments

- 1) The owner shall comply with this By-law and all other applicable enactments.
- 2) The owner shall ensure that all work, construction, or occupancy is carried out in accordance with this By-law and all other applicable enactments.
- 3) The owner shall ensure that the occupancy of a building or part of a building complies with the occupancy permit.
- 4) The issuance of a permit, the acceptance of plans and supporting documents submitted for a permit, or the making of inspections by the Chief Building Official shall not relieve the owner of a building from the full responsibility for carrying out the work or having the work carried out in accordance with this By-law and all other applicable enactments.

SCHEDULE D



Note: To be submitted with the application for a Building Permit

Building By-law
"LESSEE'S UNDERTAKING FOR TENANT IMPROVEMENTS"

The Chief Building Official
City of Vancouver
453 West 12th Avenue
Vancouver, B.C.
V5Y 1V4

Date (Month Day Year)

Dear Sir:

RE: Property Address _____
Building Permit Application No. _____

In consideration of the City accepting and processing the above application for a building permit, and as required by the Building By-law, the following representations, warranties and indemnities are given to the City.

1. (a) If an individual is the lessee:
() That I am the lessee of the above property, or

(b) If a corporation is the lessee of the property,
() That _____ is the lessee of the above property.
(Name of Corporation)
2. The lessee will comply with, and cause those employed for this project to comply with all applicable by-laws of the City of Vancouver and other statutes and regulations in force in the City of Vancouver relating to the development, work, undertaking or permission in respect of which this application is made.
3. The lessee fully understands the requirements herein, and acknowledges full responsibility for carrying out the work, or gives assurance that the work be carried out, in accordance with all by-laws governing the construction of the building. The lessee understands and acknowledges that the issuance of any permit, including an Occupancy Permit, or the inspection or approval or passage of work by the City is not a representation or warranty that any by-law has been complied with and the Lessee remains responsible at all times to assure compliance. The lessee has read and understands Article 1.1.1.2. and Article 1.3.1.5. of Division C Book I and Book II of the Building By-law which are set out on the reverse side hereof.
4. The lessee hereby agrees to indemnify and save harmless the City of Vancouver and its employees from all claims, liability, judgments, costs and expenses of every kind including negligence which may result from the failure to comply fully with all by-laws, statutes and regulations relating to any work or undertaking in respect of which this application is made.
5. Where used herein the words "work" or "undertaking" in respect of which this application is made, the lessee understands this to include all electrical, plumbing, mechanical, gas and other works necessary to complete the contemplated construction.

C3 - Draft of Proposed Energy Water Efficiency Provisions for the 2014 Building By-law

DIVISION B
ACCEPTABLE SOLUTIONS

Part 10 – Energy and Water Efficiency

Section 10.1. General

10.1.1. APPLICATION

10.1.1.1. Scope

1) The scope of this Part shall be as described in [Subsection 1.3.3. of Division A.](#)

10.1.1.2. Application

1) The application of this Part shall be as described in [Subsection 1.3.3. of Division A.](#)

10.1.2. DEFINITIONS

10.1.2.1. Defined Terms

1) Words that appear in italics are defined in [Article 1.4.1.2.](#) of Division A.

Section 10.2. Energy Efficiency

10.2.1. DESIGN AND INSTALLATION

10.2.1.1. Design

1) Except as provided in Sentence (2) or (4) [and Subsections 10.2.2. and 10.2.3.](#), all buildings shall be designed and constructed to conform to

a) ANSI/ASHRAE/IESNA 90.1-2010, "Energy Standard for Building Except Low Rise Residential Buildings", or

b) the National Energy Code of Canada for Buildings 2011 (NECB), except that if the NECB refers to the National Building Code of Canada (NBC), the provisions in this By-law shall be applied instead

2) If a building is less than 5 storeys in *building height*, those parts of the *building* classified as Group C *major occupancies* shall be designed with thermal insulation conforming to [Table](#)

[10.2.1.1.A](#)

a) between heated space and unheated space,

- b) between exterior air and exterior *soil*,
- c) between heating floor assemblies and heated space,
- d) between heating floor assemblies and unheated space,
- e) between heating floor assemblies and exterior air, and
- f) between heating floor assemblies and exterior *soil*.

3) Deleted

4) *Buildings* or parts of *buildings* described in Division A , [Sentence 1.3.3.3.\(1\)](#), that are not Group C *major occupancies*, shall be designed with thermal insulation between heated and unheated space, and between the exterior air and exterior *soil* in conformance with [Table 10.2.1.1.B](#).

5) Insulation and the installation of insulation shall conform to

- a) Subsection 9.25.2., or
- b) Part 5

Table 10.2.1.1.A Minimum Thermal Resistance of Insulation RSI, m²°C/W for <i>Buildings of Residential Occupancy less than 5 Storeys in Building Height</i> Forming part of Sentence 10.2.1.1.(2)	
<i>Building Assembly</i>	Value Required
Attic Space other than one and two family dwellings ⁽¹⁾	7.0
Attic Space for one and two family dwellings ⁽¹⁾	8.8
Roof Joist Assemblies (Cathedral Ceilings/Flat Roofs)	4.9
Frame Walls other than one and two family dwellings (including frame crawl space walls)	3.5
Frame Walls for one and two family dwellings (including frame crawl space walls) – Effective rating	3.85
Concrete or Masonry Walls (other than foundation walls)	2.1
Suspended Floors (framed)	4.9

Suspended Floors (concrete slab)	2.1
Foundation Walls other than one and two family dwellings	2.1
Foundation Walls for one and two family dwellings - Effective rating	3.85
Concrete Slabs on Ground at, above, or below grade (insulation under all slab area and around edge of slab)	2.1
Radiant Heating Suspended Floor Assembly Over Heated Area (insulation between heated floor and heated area below) ⁽⁴⁾	2.1
<p>Notes to Table 10.2.1.1.A:</p> <p>⁽¹⁾ The thermal resistance rating of attic space insulation may be reduced to value required for frame walls for a distance of 1.0 m from the exterior wall.</p> <p>⁽²⁾ Deleted</p> <p>⁽³⁾ Deleted</p> <p>⁽⁴⁾ Not applicable when heating elements or piping are located within a concrete topping on a suspended floor assembly or within an internally heated suspended slab.</p>	

<p align="center">Table 10.2.1.1.B Minimum Thermal Resistance of Insulation RSI, m²°C/W for Buildings of other than Residential Occupancy as described in Sentence 1.3.3.3.(1) (Derived from ANSI/ASHRAE/IESNA Standard 90.1)</p>		
<i>Building Assembly</i>	Value Required	
	Heated	Semi-heated⁽¹⁾
Roof Insulation		
Above deck	2.6 ^(ci)	0.9 ^(ci)
Metal building ⁽²⁾	3.3	1.8

Attic or other	5.3	3.3
Walls, Above Ground		
Mass	1.3 ^(ci)	-
Metal building ⁽²⁾	2.3	1.9
Steel Framed ⁽⁴⁾	2.3+0.7 ^(ci)	2.3
Wood Frame or other	2.3	2.3
Suspended Floors		
Framed	5.3	2.3
Concrete slab	1.5	-

Notes to Table 10.2.1.1.B:

^(ci) Continuous insulation: insulation that is continuous across all structural members without thermal bridges other than fasteners and service openings. It is installed on the interior, exterior or is integral to any opaque surface of the *building* envelope.

⁽¹⁾ Semiheated space is an enclosed space within a *building* that is heated by a heating system greater or equal to 10W/m² of floor area but does not exceed 45 W/m² of floor area in locations of less than 4000 degree days.

⁽²⁾ A building constructed primarily of a steel framed superstructure and metal skin.

⁽³⁾ Deleted

⁽⁴⁾ A wall with a cavity (insulated or otherwise) whose exterior surfaces are separated by steel framing members (i.e. typical steel stud walls and curtain wall systems.).

6) If the *Chief Building Official*, in consultation with the Director of Planning, is of the opinion that the incremental cost of full compliance with the ANSI/ASHRAE/IESNA 90.1 Standard will exceed the discounted value of future energy savings, the *Chief Building Official*, in consultation with the Director of Planning, may relax the requirements of Part 10.

10.2.1.2. Lighting Controls in Residential Buildings

1) Where a residential building or a portion of a multi-use building contains more than 20 residential suites, the building shall be designed with

a) occupancy based lighting sensor controls, located in all exit stair shafts and parking garages, compatible with the requirements of Sentence 3.2.7.3.(1) of Division B., and

b) a switch near the principal entrance of each residential suite that controls all overhead lighting fixtures within the suite, except overhead lights serving corridors and stairs within the suite.

10.2.1.3. Sub-metering in Buildings

1) Buildings shall be designed with sub-metering for

a) hot water generated by a central hot water generation system,

b) natural gas used for air handling systems in common areas, and

c) natural gas used for domestic hot water in amenity spaces, pools and spas.

10.2.2. Energy Efficiency for One-Family Dwellings, Two-Family Dwellings, One-Family Dwellings with Secondary Suites, and Laneway Houses

10.2.2.1. Conflicts

1) In case of discrepancy between the provisions of this Subsection and other provisions of this By-law, this Subsection shall apply.

10.2.2.2. Windows, Glass Doors and Skylights

1) Windows and glass doors shall have a maximum thermal conductance (U value) of 1.4 W/(K·m²) and shall be labeled accordingly. (see Appendix A)

2) Skylights shall have a maximum thermal conductance (U value) of 2.4 W/(K·m²).

10.2.2.3. Electrically Heated Hot Water Tanks

1) Electrically heated hot water tanks shall have insulation with a minimum RSI value of 1.76.

10.2.2.4. Hot Water Tank Piping

1) The first 3 m of non-recirculating hot water piping leading from both electrically heated and gas heated hot water tanks, and the last 1 m of piping leading to the hot water tank connection, shall have insulation with a minimum RSI value of 0.35.

2) Notwithstanding Sentence (1), a hot water piping system designed to constantly recirculate shall have insulation with a minimum RSI value of 0.35.

10.2.2.5. Gas-Heated Domestic Hot Water Heaters

1) Gas-heated appliances providing domestic hot water only shall have an energy factor of not less than 78%, as determined by the following

a) CSA P.3-04, "Testing Method for Measuring Energy Consumption and Determining Efficiencies of Gas-Fired Storage Water Heaters"

b) CSA P.7-10, "Testing Method for Measuring Energy Loss of Gas-Fired Instantaneous Water Heaters"

c) CSA C191-04, "Performance of electric storage tank water heaters for domestic hot water service" or

d) CSA 4.3/ANSI Z21.10.3, "Gas Water Heaters Volume III, Storage Water Heaters, with Input Ratings above 75,000 Btu per hour, Circulating and Instantaneous

10.2.2.6. Gas-Heated Boilers

1) Gas-heated boilers providing heat or heat and domestic hot water shall have an Annual Fuel Utilization Efficiency (AFUE) rating of not less than 92%, as tested using CSA P.2-07, Testing Method for Measuring the Annual Fuel Utilization Efficiency of Residential Gas-fired Furnaces and boilers.

10.2.2.7. Gas-Heated Furnaces

1) Gas-heated furnaces shall have an Annual Fuel Utilization Efficiency (AFUE) rating of not less than 92%, as tested using CSA P.2-07: "Testing Method for Measuring the Annual Fuel Utilization Efficiency of Residential Gas-Fired Furnaces and Boilers".

10.2.2.8. Gas-Fired Fireplaces

1) **Gas-fired** fireplaces in conditioned spaces shall use

a) intermittent pilot ignition (IPI) systems, or

b) on-demand ignition systems that automatically shut off within 7 days of appliance non-use.

2) **Gas-fired** fireplaces shall be direct vented.

10.2.2.9. Wood Burning Heating Appliances

1) Except for cooking stoves and ranges, a wood burning heating appliance installed in a residential dwelling unit shall be tested in accordance with CAN/CSA B415.1-10 "Performance Testing of Solid-Fuel-Burning Heating Appliances" or EPA Title 40, Part 60, Subpart AAA – "Standards of Performance for New Residential Wood Heaters", and shall

a) produce not more than 2.5 grams per hour of particulate air contaminant emissions for catalytic appliances, or

b) produce not more than 4.5 grams per hour of particulate air contaminant emissions for non-catalytic appliances.

2) Open masonry fireplaces and factory-built fireplaces are not permitted.

10.2.2.10. Heat Recovery Ventilators

1) This Article does not apply to Laneway houses

2) There shall be one heat recovery ventilator in

a) Each dwelling unit in a one-family dwelling or in a two-family dwelling, and

B) each one-family dwelling with a secondary suite.

3) Components of mechanical ventilation systems not specifically described in this Subsection shall be designed, constructed and installed in accordance with good engineering practice and as described in the ASHRAE Handbooks and Standards, HRAI Digest, TECA Ventilation Guideline, Hydronics Institute Manuals or the SMACNA manuals.

4) A heat recovery ventilator (HRV) shall

a) have 65% sensible heat recovery efficiency (65% Minimum SRE at 0°C) and be designed and tested in conformance with CSA 22.2 No. 113M-1984,

b) be designed and tested to meet the CSA International Standard CAN/CSA-F326 M91 ("Residential Mechanical Ventilation Systems"),

c) be installed by persons trained by the Thermal Environmental Comfort Association (TECA) or the Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI) or equivalent,

d) supply outdoor air directly to the principal living area, to each bedroom, and to any floor without a bedroom, directly or indirectly, through a central recirculation system with a continuously operating fan,

e) be designed to run continuously to meet or exceed Table 9.32.3.3.A of Division B,

f) not be connected to kitchen and bathroom exhaust fans,

h) have exterior connected supply-air ducts and exhaust ducts insulated to not less than RSI 0.75 (R 4.25) and shall have an effective vapour barrier,

i) have balanced HRV supply and exhaust air flows within plus or minus 10% of the actual normal operating exhaust capacity,

j) be labelled with tested supply and exhaust air flows for high and low settings, measured in CFM and

k) be located within conditioned space in the dwelling unit for access,

5) The HRV system contractor or installer shall provide a completed Mechanical Ventilation Checklist to the Chief Building Official.

6) A contractor trained in the installation of Energy Recovery Ventilators (ERV) may instal an ERV in lieu of a Heat Recovery Ventilator.

10.2.2.11. Solar Ready Pipe Run

- 1) This Article does not apply to Laneway houses .
- 2) A solar ready pipe chase, consisting of at least two 50 mm PVC pipes, capped at both ends and having at least a 20° angle measured above the horizontal level, shall extend from a location near the service water heater, to the attic space.

10.2.2.12. Energuide Rating System Audit

1) At the time of final inspection, the owner shall provide the Chief Building Official with an Energuide Rating System Audit, as defined by the EnerGuide™ Rating Service of Natural Resources Canada.

2) A dwelling unit shall have a maximum of 3.5 air changes per hour or be sealed according to good engineering practice as described in Appendix A.

10.2.3. Electric Vehicle Charging

10.2.3.1. – Electric Vehicle Charging for Buildings

1) Except as provided by Sentence (2), each storage garage or carport in one-Family Dwellings, Two-Family Dwellings, One-Family Dwellings or two family dwellings with Secondary Suites, and Laneway Houses shall be provided with an electrical junction box wired with a separate branch circuit capable of supplying 32A at 220V labelled to identify its intended use.

2) Where the requirements of Sentence (1) would cause the electrical supply to the property to exceed 200A, a cable raceway leading from an electricity circuit panel to an enclosed outlet box in the garage or carport shall be provided and the outlet box labelled to identify its intended use.

3) A *multi-family building* or the *multi-family* component of a mixed use *building* that includes three or more *dwelling units*, shall be designed with a receptacle for charging of electric vehicles in 20% of all parking stalls used *owners* or occupiers of *dwelling units*.

4) A commercial building, or the commercial component of a mixed use building, shall be designed with a receptacle for charging electric vehicles in 10% of all parking stalls.

5) The receptacle required by Sentences (3) and (4) shall be designed with an electrical capacity of at least 220V and 32A for each parking stall.

10.2.3.3. Electrical Rooms

1) In a *multi-family building* or the *multi-family* component of a mixed use *building*, with three or more *dwelling units*, an electrical room shall be designed with sufficient space for the future installation of electrical equipment necessary to support the installation of receptacles for charging electric vehicles, in all residential parking stalls.

Section 10.3. Water Efficiency

10.3.1. DESIGN AND INSTALLATION

10.3.1.1. Fixture Fitting Maximum Flow Rates

1) The flow rates of fittings that supply water to plumbing fixtures must not exceed the maximum flow rate at the test pressures listed for that fitting in [Table 10.3.1.1.](#)

<p align="center">Table 10.3.1.1. Maximum Flow Rate Forming part of Sentence 10.3.1.1.(1)</p>		
Fittings	Maximum Flow (L/min)	Test Pressure (kPa)
Lavatory Faucet	8.3	415
Kitchen Faucet	8.3	415
Shower Head	9.5	550

10.3.1.2. Fixture Efficiency

1) Except as required by Sentence 10.3.1.2.(2), the flush cycle for the installation of a water closet or urinal must not exceed the flush cycle listed for that fixture in Table 10.3.1.2.A

<p align="center">Table 10.3.1.2.A Maximum Flush Cycle Forming part of Sentence 10.3.1.2.(1)</p>	
Fixture	L
Water Closet (Tank Type)	6.0
Water Closet (Direct Flush)	6.0
Urinal (Tank Type)	1.9
Urinal (Direct Flush)	1.9

2) The flush cycle for the installation of a water closet or urinal in a Group C residential occupancy must not exceed the flush cycle listed for that fixture in Table 10.3.1.2.B

Table 10.3.1.2.B
Maximum Flush Cycle
Forming part of Sentence 10.3.1.2.(2)

Fixture	L
Water Closet (Tank Type)	4.8 ⁽¹⁾
Water Closet (Direct Flush)	4.8
Urinal (Tank Type)	1.9
Urinal (Direct Flush)	1.9

Notes to Table 10.3.1.2.B:

⁽¹⁾ A water closet with a dual flush cycle of 4.1 L or less and 6.0 L complies with this requirement.

3) The water supply to urinal flush tanks equipped for automatic flushing shall be controlled with a timing device in order to limit operation to the period during which the *building* is normally occupied.

C4 - Draft of Proposed Energy Water Efficiency Provisions for the 2014
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DIVISION B
ACCEPTABLE SOLUTIONS

Part 11 – Existing Buildings

Section 11.1. General

10.1.1. APPLICATION

10.1.1.1. Scope

1) The scope of this Part shall be as described in Subsection 1.3.3. of Division A.

10.1.1.2. Application

1) The application of this Part shall be as described in Subsection 1.3.3. of Division A.

10.1.2. DEFINITIONS

10.1.2.1. Defined Terms

1) Words that appear in italics are defined in Article 1.4.1.2. of Division A of Division A.

Section 11.2. Upgrade Application

(See Appendix A)

11.2.1. UPGRADE REQUIREMENTS

11.2.1.1. Upgrade Objectives

1) An *alteration* to an *existing building* shall trigger upgrading of the *existing building* to meet the following objectives

a) all *unsafe conditions* shall be corrected to an *acceptable* level,

b) all new materials and *construction* work shall comply with this By-law, and

c) the *building* shall be upgraded to an *acceptable* level of fire, life and health safety, structural safety, non-structural safety, accessibility for persons with disabilities, and energy efficiency,

(d) any significant extension of the design life of an *existing building* beyond its original design life shall require upgrading to an *acceptable* level, and

e) an *alteration* to an individual *suite* within an *existing building* will not trigger upgrades within any other *suites* except where the *alteration* creates non-conformity with the By-law within such other *suites*.

11.2.1.2. General Requirements

1) Where *construction of existing buildings* occurred before the effective date of this By-law, reconstruction or *alteration of existing buildings* is not a requirement of this By-law, except as required by Articles 11.2.1.3. to 11.2.1.10. inclusive

2) Except as provided in Sentences (3) to (9) inclusive, and Articles 11.2.1.3. to 11.2.1.11. inclusive, where an *alteration* is made to an *existing building*, the *alteration* shall comply with this By-law and the existing building shall be

a) upgraded to an *acceptable* level as defined in the upgrade mechanism model in Division B Appendix A, or

b) upgraded as determined by the Chief Building Official where the owner demonstrates that the design levels as defined by the upgrade mechanism model in Division B Appendix A present a hardship for the owner.

3) Where an alteration does not involve an addition or a change in major occupancy, except for a change of major occupancy to a small suite, then further upgrading to an existing building is not a requirement of this By-law provided

a) construction or a full upgrade of the building occurred on or after May 1, 1997,

b) all unsafe conditions are corrected to an acceptable level as determined by the Chief Building Official, and

c) all new work is in compliance with this By-law.

4) Where a voluntary upgrade for fire alarm systems, sprinkler systems, exits, accessibility, seismic work, energy efficiency or building envelope repair is carried out, then no further upgrade of the building is required except that, where other work is included in the application, the upgrade requirement will only be based on the non-voluntary work proposed.

5) Where voluntary building envelope repair involves more than 60% of one vertical section of an exposed building face, then the building envelope on the entire vertical section of that exposed building face shall be replaced, except that this Sentence does not apply to one and two-family dwellings.

6) Where there is a change of major occupancy to a Post Disaster occupancy as defined in Table 4.1.2.1. of Division B, or where there is a major addition to a Post Disaster building, then the entire building shall be upgraded to design upgrade levels F4, S4, N4, A4 and E7 as detailed in the upgrade mechanism model in Division B Appendix A.

7) Where there is a temporary change of major occupancy to an *assembly occupancy* for an *arts and culture indoor event* in a building which is classified as Group E retail, Group F Division 2 production or rehearsal studio, wholesale, warehouse, or factory, or Group F Division 2 artist studio without living accommodations, then the upgrade requirements shall be based solely on Section 11.6 of Division B.

8) Where there is a change of major occupancy in a building, and the aggregate area of the change in major occupancy within any 5 year period is greater than 50% of the building area in a one storey building or greater than 100% of the building area in a building of more than one storey, then the entire building shall be upgraded to design upgrade levels F4, S4, N4, A4 and E7 as detailed in the upgrade mechanism model in Division B Appendix A.

9) The upgrade requirements for energy efficiency to existing buildings shall conform to the upgrade mechanism model in Division B Appendix A for energy efficiency except for

a) buildings designed and constructed in conformance with ASHRAE 90.1-2007,

b) buildings designed and constructed in conformance with Article 9.25.2.1. Division B of By-law #9419, and

c) buildings where the alteration is limited to the upgrade of energy related specific equipment, as listed in Table 11.2.1.2, provided the replacement equipment complies with industry standards for “high efficiency”.

Equipment Type	Specific Equipment
Basic Building Systems	Boilers
	Furnaces
	Hot Water Tanks
	Lighting Systems
	Energy Reduction Sensors (occupant, light, etc.)
Renewable Energy Systems	Photovoltaic system
	Solar Thermal system
	Biofuel-based Energy system
	Geothermal Heating system
	Geothermal Electric system
	Wave & Tidal Power system
High Performance Energy Systems	Ground Source Heat Pump system
	Air Source Heat Pump system
	Waste Heat Recovery system

11.2.1.3. Sprinkler Installation Requirements for the Addition of Dwelling Units in Multi-family Buildings (See Appendix A)

1) Except as provided in Sentence (2), where an alteration to an existing building creates or adds one or more dwelling units, then the building shall be sprinklered in conformance with Table 11.2.1.3.

2) Where the alteration in Sentence (1) involves the addition of existing floor space to an existing dwelling unit, and that converted space is greater than 50% of the floor area of the original dwelling unit, then the altered dwelling unit shall be considered as a new dwelling unit and the building shall be sprinklered in conformance with Table 11.2.1.3.

3) Sprinklers shall be installed throughout the storey on which the new dwelling unit is to be located and all storeys immediately below the new dwelling unit.

Existing Dwelling Units	New DUs¹ Added Over Any 5 year Period²				
	1	2-3	4-5	6	>6
1	Spr R ³	Spr R	Spr R	Spr R	Spr R
2-4	-	Spr R	Spr R	Spr R	Spr R
5-10	-	-	Spr R	Spr R	Spr R
11-20	-	-	-	Spr R	Spr R
>20	-	-	-	-	Spr R

Notes: ¹ Dwelling Units

² The creation of dwelling units over the previous 5 years from the date of the proposed building permit application

³ Sprinklers Required

11.2.1.4. Upgrade Requirements for One and Two Family Dwellings

1) Except as required in Sentences (3) and (4) and Subsection 11.4 of this Part, where an alteration is made to a one family or two family dwelling, then the level of upgrade shall conform to Sentence (2), provided

- a) the alteration is not a change of major occupancy,
- b) the alteration does not create more dwelling units,
- c) all new work is in compliance with this By-law, and
- d) the value of the alteration is less than or equal to 50% of the replacement value of the existing building.

2) Where the provisions of Sentence (1) apply to an alteration to a one family or two family dwelling, then

- a) all unsafe guards, handrails and stairs shall be upgraded to the satisfaction of the Chief Building Official,
- b) smoke alarms shall be installed in conformance with Subsections 3.2.4. and 9.10.19. of Division B,
- c) carbon monoxide alarms shall be installed in conformance to Subsections 6.2.4. and 9.32.4. of Division B,
- d) all existing exterior wood frame walls shall be anchored to existing concrete foundation walls for seismic resistance where the proposed scope of work will expose the foundation walls and interfacing exterior wood frame walls, and
- e) the energy efficiency of the building shall be upgraded in conformance with Table A-11.2.1.3.

Table A-11.2.1.3. Energy Efficiency Upgrade for One and Two Family Dwellings	
Const. Value (\$)	Upgrade Level
≤5K	Not Required
>5 ≤25K	A and B
>25 ≤50K	A, B, and C
>50K	A, B, C and D

Notes

Level A – Submit an EnerGuide (EGH) report completed within the last 4 years
 Level B – Where work includes a new boiler or furnace, then AFUE to be ≥90%
 Level C – Where EGH > 5 air changes per hour, then building envelope air sealing required
 Level D – Where attic insulation <R12 (2.11RSI), then increase to R28 (4.93RSI) or where attic insulation ≥R12 (2.11RSI) then increase to R40 (7.04RSI); and upgrade all flat roof and cathedral ceiling insulation to ≥R14 (2.47RSI). Note attic insulation not to exceed R43.7 (7.7RSI)

3) Where the value of the alteration to a one family or two family dwelling exceeds 50% of the replacement value of the existing building, a sprinkler system shall be installed throughout the building.

4) Where an alteration to a one family or two family dwelling does not fall within the scope of Clauses (1)(a),(b) or (d) and Subsection 11.4 of this Part, the building shall be upgraded to an *acceptable* level as determined by the upgrade mechanism model in Division B Appendix A.

11.2.1.5. Self-contained Separated Spaces

1) Where an alteration to a building is a self-contained volumetric space that is separated from the remainder of the building by a non-combustible vertical or horizontal fire separation with a 2h fire resistance rating, the upgrade requirements of this Part do not apply to the remainder of the building provided

- a) the self-contained volumetric space is upgraded in conformance with this By-law,
- b) the self-contained volumetric space does not exit through the remainder of the building,
- c) a non-combustible vertical fire separation with a 2h fire resistance rating is constructed as a continuous vertical fire separation from the building foundation to the underside of the roof sheathing,
- d) a non-combustible horizontal fire separation with a 2h fire resistance rating is constructed as a continuous horizontal fire separation of the building and terminates at the exterior cladding of the exterior walls of the building, and
- d) the self-contained volumetric space does not reduce the existing structural capacity of the building.

2) Where a horizontal addition to a building is a self-contained separate volumetric space that is separated from the remainder of the building by a non-combustible vertical fire separation with a 2h fire resistance rating, the upgrade requirements of this Part do not apply to the remainder of the building, provided

- a) the self-contained separate volumetric space is upgraded in conformance with this By-law,
- b) the self-contained separate volumetric space does not exit through the remainder of the building, and
- c) the non-combustible vertical fire separation with a 2h fire resistance rating is constructed as a continuous vertical fire separation from the building foundation across the entire interface of the existing building and the addition, and
- d) the self-contained separate volumetric space does not reduce the existing structural capacity of the building.

11.2.1.6. Relocated Buildings

1) Where a building is relocated from another municipality to the City, from another lot within the City or within its existing lot, the building shall be upgraded to Design Upgrade Levels F4, S4, N4, A4 and E7, as determined by the upgrade mechanism model in Division B Appendix A.

11.2.1.7. Relocated Property Lines

1) Where property lines are relocated closer to a building, the building shall be upgraded to conform to the spatial requirements, fire department access requirements and means of egress requirements of this By-law or the applicant shall demonstrate that the relocated property lines and the existing building configuration comply with this By-law.

11.2.1.8. Demolished Buildings

1) Where a building is being demolished in whole or in part, the demolition work shall conform to the requirements of Part 8 of Division B and any part of the building that remains after demolition shall be upgraded in conformance with Article 11.2.1.2.

11.2.1.9. Damaged Buildings

1) Where a building has been damaged, all work necessary to reconstruct the damaged portions of the building shall conform to this By-law and the Fire By-law and the remainder of the *building* shall be upgraded in conformance with Article 11.2.1.2.

11.2.1.10. Fire Department Upgrade Program

1) Where an order issued under the Fire By-law requires upgrading of a *building*, the *Chief Building Official* may allow deviations from this By-law..

11.2.1.11. Specific Upgrade Requirements for Float Homes and Marinas

1) Except as permitted by Sentence (2), where a *marina* is *altered*, all new work shall comply with Subsection 12.2.2 of Division B and the marina shall be upgraded to an *acceptable* level as determined by the upgrade mechanism model in Division B Appendix A.

2) Except as required by Sentence (3), Sentences 12.2.2.2.(1), 12.2.2.3.(3), 12.2.2.6.(1), 12.2.2.6.(2), 12.2.2.7.(1), and 12.2.2.8.(1) need not apply to a *marina*.

3) Where the total value of the *alteration to a marina* exceeds 50% of the value of the *marina* as determined at the application stage for the alteration, then the *marina* shall comply with this Subsection 12.2.2.

4) Where a *float home* is *altered*, all new work shall comply with Subsection 12.2.2 of Division B and this By-law, and the float home shall be upgraded to an *acceptable* level as determined by the upgrade mechanism model in Division B Appendix A.

5) A marina shall have an occupancy classification of Group F Division 3.

Section 11.3 Alternative Acceptable Solutions for Existing Conditions to Assist Rehabilitation

11.3.1. Objectives

11.3.1.1. Acceptable Alternative Solutions for Existing Conditions

1) The provisions of this Section are acceptable alternative solutions to assist in the rehabilitation of *buildings*.

11.3.1.1. Application of Alternative Acceptable Solutions for Existing Conditions

1) Except as permitted in Sentence (3), the alternative solutions provided in this Section are to be applied to existing conditions only and are not to be applied to new work which must comply with the requirements for new construction in other Parts of this By-law.

2) Where the building is a Heritage building, the acceptable solutions in Section 11.5 may be applied to existing conditions.

3) The alternative solutions provided in Subsection 11.3.2. do not apply to newly constructed buildings, or to buildings where the date of the issuance of the full occupancy permit for the original building or for the last major addition is within the preceding two years.

4) Alterations to newly constructed buildings, as determined by Sentence (3), shall comply to Parts 1 to 10 of Division B in Book I and Parts 1 to 2 of Division B in Book II.

11.3.1.2. Conditions for Using Alternative Acceptable Solutions

1) Where a *building* or a portion of a *building* is required to comply with this By-law under Subsection 11.2.1., the provisions contained in this Section may be applied as alternative acceptable solutions to those requirements contained elsewhere in this By-law, under the conditions specified in Sentences (2) to (7), provided the *building* was originally constructed pursuant to a building permit issued prior to January 1997.

2) Except for *additions* and *new construction*, where Subsection 3.2.2. requires that the construction of a *building* be *noncombustible*, the applicable Article in Subsection 11.3.2. may be applied as an alternative provided all of the requirements of the Article have been met.

3) Except for *additions* and *new construction*, where the spatial separation and exposure protection requirements of Subsection 3.2.3. require that the exterior wall construction of a *building* to be *noncombustible*, Subsection 11.3.3. may be applied.

4) Where the fire containment measures of a *building* are deficient, Subsections 11.3.4. and 11.3.6. may be used as an alternative.

5) Where the *exits* in a *building* are deficient, Subsections 11.3.5. and 11.3.6. may be used as an alternative.

6) Where a *building* is *sprinklered* throughout, the applicable relaxations of Subsection 11.3.6. may be applied as an alternative.

7) Where a *building* is designated as a *heritage building*, alternate compliance methods as detailed in Section 11.5. may be applied as an alternative.

11.3.2. Construction and Building Safety Alternatives

11.3.2.1. Group A1 up to 600 Auditorium Occupants

1) A Group A, Division 1 *occupancy* having an *occupant load* of not more than 600 may be permitted within the *first* and *second storey* of a *building* provided the *building* conforms to Sentence (2).

2) A *building* referred to in Sentence (1) shall

a) be upgraded to comply with Sentence 3.2.2.21.(2), except that all floor assemblies shall be *fire separations* with a *fire-resistance rating* not less than 1 h,

b) be provided with a fire alarm and detection system conforming to Subsection 3.2.4., notwithstanding any exemptions permitted by Article 3.2.4.1.,

c) be provided with lighting and emergency power systems conforming to Subsection 3.2.7.,

- d) be upgraded to provide all *exit* locations with a maximum travel distance of 22.5 m for *sprinklered buildings* and 15 m for unsprinklered *buildings*,
- e) except as permitted in Subsection 11.3.3., be upgraded to provide exterior wall and opening protection conforming to Subsection 3.2.3.,
- f) be structurally upgraded to the design upgrade level S3 as defined in the upgrade mechanism model in Division B Appendix A,
- g) except as permitted in Subsections 11.3.4. and 11.3.6., be upgraded to comply with the fire containment requirements within a *floor area* conforming to this By-law, and
- h) except as permitted in Subsections 11.3.5. and 11.3.6. and as required by Clause (d), be upgraded to provide *exit* systems conforming to Section 3.4.

11.3.2.2. Group A1 up to 300 Auditorium Occupants

1) A Group A, Division 1 *occupancy* having an auditorium *occupant load* of not more than 300, may be permitted within the *first* and second *storey* of a *building*, provided the *building* conforms to Sentence (2).

2) A *building* referred to in Sentence (1) shall

- a) be upgraded to comply with Sentence 3.2.2.22.(2), except that all floor assemblies shall be *fire separations* with a fire resistance rating not less than 1 h,
- b) be provided with a fire alarm and detection system conforming to Subsection 3.2.4., notwithstanding any exemptions permitted by Article 3.2.4.1.,
- c) be provided with lighting and emergency power systems conforming to Subsection 3.2.7.,
- d) be upgraded to provide all *exit* locations with a maximum travel distance of 22.5 m for *sprinklered buildings* and 15 m for unsprinklered *buildings*,
- e) except as permitted in Subsection 11.3.3., be upgraded to provide exterior wall and opening protection conforming to Subsection 3.2.3.,
- f) be structurally upgraded to the design upgrade level S3 as defined in the upgrade mechanism model in Division B Appendix A,
- g) except as permitted in Subsections 11.3.4. and 11.3.6., be upgraded to comply with the fire containment requirements within a *floor area* conforming to this By-law, and
- h) except as permitted in Subsections 11.3.5. and 11.3.6. and as required by Clause (d), be upgraded to provide *exit* systems conforming to Section 3.4.

11.3.2.3. Group A2 in Building More Than 3 Storeys

1) A Group A, Division 2 *occupancy* may be permitted within the first 3 *storeys* of a *building* which is more than three *storeys* in *building height*, provided the *building* conforms to Sentence (2), and provided

- a) where the *occupancy* is located on the third *storey* or where the *building area* exceeds 400 m², the entire *building* shall be *sprinklered* or

b) where the *occupancy* is located on the *first* or *second storey*, the *building* shall be *sprinklered* up to and including the *storey* containing the *Group A2 occupancy*.

2) A *building* referred to in Sentence (1) shall conform to Sentence 11.3.2.4.(2).

11.3.2.4. Group A2 Up to 3 Storeys

1) A *Group A, Division 2 occupancy* may be permitted in a *building* not more than three *storeys* in *building height*, provided the entire *building* is *sprinklered* and conforms to Sentence (2), where

a) the *building area* exceeds 400 m², or

b) the *occupancy* is located on the *third storey*.

2) A *building* referred to in Sentence (1) shall

a) be upgraded to conform to Sentence 3.2.2.25.(2),

b) be provided with a fire alarm and detection system conforming to Subsection 3.2.4., notwithstanding any exemptions permitted by Article 3.2.4.1.,

c) be provided with lighting and emergency power systems conforming to Subsection 3.2.7.,

d) except as permitted in Subsection 11.3.3., be upgraded to provide exterior wall and opening protection conforming to Subsection 3.2.3.,

e) be structurally upgraded to the design upgrade level S3 as defined in the upgrade mechanism model in Division B Appendix A,

f) except as permitted in Subsections 11.3.4. and 11.3.6., be upgraded to comply with the fire containment requirements within a *floor area* conforming to this By-law, and

g) except as permitted in Subsections 11.3.5. and 11.3.6., be upgraded to provide *exit* systems conforming to Section 3.4.

11.3.2.5. Group B2 Ambulatory Occupants

1) A *Group B, Division 2 occupancy* containing only occupants that are capable of walking up or downstairs unaided may be permitted within the first 3 *storeys* of a *building*, provided the entire *building* is *sprinklered* and conforms to Sentence (2),.

2) A *building* referred to in Sentence (1) shall

a) be upgraded to conform to Sentence 3.2.2.40.(2),

b) be provided with a fire alarm and detection system conforming to Subsection 3.2.4. where the *building* contains more than 2 *storeys* including *storeys* below *grade* or where the *building area* exceeds 250 m² regardless of the *occupant load*,

c) be provided with lighting and emergency power systems conforming to Subsection 3.2.7.,

d) except as permitted in Subsection 11.3.3., be upgraded to provide exterior wall and opening protection conforming to Subsection 3.2.3.,

e) be structurally upgraded to the design upgrade level S3 as defined in the upgrade mechanism model in Division B Appendix A,

f) except as permitted in Subsections 11.3.4. and 11.3.6., be upgraded to comply with the fire containment requirements within a *floor area* conforming to this By-law, and

g) except as permitted in Subsections 11.3.5. and 11.3.6., be upgraded to provide *exit* systems conforming to Section 3.4.

11.3.2.6. Group B2 Non-ambulatory Occupants

1) A Group B, Division 2, non-ambulatory *occupancy* may be permitted only within a *storey* of a *building* which has direct or ramped access to ground level, provided the entire *building* is *sprinklered* and conforms to Sentence (2).

2) A *building* referred to in Sentence (1) shall

a) be upgraded to conform to Sentence 3.2.2.40.(2),

b) be provided with a fire alarm and detection system conforming to Subsection 3.2.4. where the *building* contains more than 2 *storeys* including *storeys* below *grade* or where the *building area* exceeds 250 m² regardless of the *occupant load*,

c) be provided with lighting and emergency power systems conforming to Subsection 3.2.7.,

d) except as permitted in Subsection 11.3.3., be upgraded to provide exterior wall and opening protection conforming to Subsection 3.2.3.,

e) be structurally upgraded to the design upgrade level S3 as defined in the upgrade mechanism model in Division B Appendix A,

f) except as permitted in Subsections 11.3.4. and 11.3.6., be upgraded to comply with the fire containment requirements within a *floor area* conforming to this By-law, and

g) except as permitted in Subsections 11.3.5. and 11.3.6., be upgraded to provide *exit* systems conforming to Section 3.4.

11.3.2.7. Group C More Than 3 Storeys

1) A Group C *occupancy* may be permitted in a *building* more than 3 *storeys* in *building height* provided the entire *building* is *sprinklered* and conforms to Sentence (2).

2) A *building* referred to in Sentence (1) shall

a) be upgraded to conform to Sentence 3.2.2.50.(2), provided the *building* conforms to Clause 3.2.2.50.(1)(d),

b) be provided with a fire alarm and detection system conforming to Subsection 3.2.4.,

c) be provided with lighting and emergency power systems conforming to Subsection 3.2.7.,

d) except as permitted in Subsection 11.3.3., be upgraded to provide exterior wall and opening protection conforming to Subsection 3.2.3.,

e) be structurally upgraded to the design upgrade level S3 as defined in the upgrade mechanism model in Division B Appendix A,

f) except as permitted in Subsections 11.3.4. and 11.3.6., be upgraded to comply with the fire containment requirements within a *floor area* conforming to this By-law, and

g) except as permitted in Subsections 11.3.5. and 11.3.6., be upgraded to provide *exit* systems conforming to Section 3.4.

11.3.2.8. Group D Occupancies

1) A Group D *occupancy* may be permitted in a *building* that exceeds 3 *storeys* in *building height* provided that the entire *building* is *sprinklered* and conforms to Sentence (2).

2) A *building* referred to in Sentence (1) shall

1) be upgraded to conform to Sentence 3.2.2.58.(2) provided the limitations of Table 3.2.2.55. are not exceeded,

b) where the limitations of Table 3.2.2.55. are exceeded, be upgraded to conform to Sentence 3.2.2.55.(2), except that existing *combustible construction* shall be permitted,

c) except as permitted in Subsection 11.3.3., be upgraded to provide exterior wall and opening protection conforming to Subsection 3.2.3.,

d) be structurally upgraded to the design upgrade level S3 as defined in the upgrade mechanism model in Division B Appendix A,

e) except as permitted in Subsections 11.3.4. and 11.3.6., be upgraded to comply with the fire containment requirements within a *floor area* conforming to this By-law, and

f) except as permitted in Subsections 11.3.5. and 11.3.6., be upgraded to provide *exit* systems conforming to Section 3.4.

11.3.2.9. Group E Occupancies

1) A Group E *occupancy* may be permitted in a *building* provided that the building conforms to Sentence (2). except that where the building exceeds 1000 m² in *building area*, or 3 *storeys* in *building height* the entire *building* shall be *sprinklered*

2) A *building* referred to in Sentence (1) shall

a) be upgraded to conform to Sentence 3.2.2.64.(2) provided the *building* is not more than 4 *storeys* in *building height* and the *building area* is not more than 1800 m²,

b) except as required in Clause (c), be upgraded to conform to Sentence 3.2.2.63.(2) provided the *building* is not more than 6 *storeys* in *building height* and the *building area* conforms to Table 11.3.2.9.

c) be upgraded to conform to Sentence 3.2.2.62.(2), except that existing *combustible construction* and floor assemblies with a 1 1/2 h *fire separation* shall be permitted, when the *building* is more than 6 *storeys* in *building height*,

d) except as permitted in Subsection 11.3.3., be upgraded to provide exterior wall and opening protection conforming to Subsection 3.2.3.,

e) be structurally upgraded to the design upgrade level S3 as defined in the upgrade mechanism model in Division B Appendix A,

f) except as permitted in Subsections 11.3.4. and 11.3.6., be upgraded to comply with the fire containment requirements within a *floor area* conforming to this By-law, and

g) except as permitted in Subsections 11.3.5. and 11.3.6., be upgraded to provide *exit* systems conforming to Section 3.4.

Table 11.3.2.9.			
Forming Part of Sentence 11.3.2.9.(2)			
No. of Storeys	Sprinklered Maximum Area, m²		
	Facing 1 Street	Facing 2 Streets	Facing 3 Streets
1	Unlimited	Unlimited	Unlimited
2	7 500	Unlimited	Unlimited
3	5 000	6 250	7 500
4	3 750	4 688	5 625
5	3 000	3 750	4 500
6	2 500	3 125	3 750

11.3.2.10. Group F2 or F3 Occupancies

1) A Group F, Division 2 or 3 *occupancy* may be permitted in a *building*, provided that the *building* conforms to Sentence (2) except that where the building exceeds 1000 m² in *building area*, or 2 *storeys* in *building height*, the entire building shall be *sprinklered*.

2) A *building* referred to in Sentence (1) shall

a) be upgraded to conform to Sentence 3.2.2.74.(2), and Table 11.3.2.10, except that roofs of *combustible construction* shall only be permitted in buildings with a *building area* not greater than 4800 m²,

b) except as required in Clause (c), where the limitations of Table 11.3.2.10. are exceeded, be upgraded to conform to Sentence 3.2.2.73.(2), except that existing *combustible construction* shall be permitted,

c) be upgraded to conform to Article 3.2.2.72.(2), when the *building* is more than 6 *storeys* in *building height*, except that existing *combustible construction* and floor assemblies with a 1 1/2 h *fire separation* shall be permitted,

d) be upgraded to provide exterior wall and opening protection conforming to Subsection 3.2.3., except as permitted in Subsection 11.3.3.,

e) be structurally upgraded to the design upgrade level S3 as defined in the upgrade mechanism model in Division B Appendix A,

f) except as permitted in Subsections 11.3.4. and 11.3.6., be upgraded to comply with the fire containment requirements within a *floor area* conforming to this By-law, and

g) except as permitted in Subsections 11.3.5. and 11.3.6., be upgraded to provide *exit* systems conforming to Section 3.4.

**Table 11.3.2.10.
Forming Part of Sentence 11.3.2.10.(2)**

No. of Storeys	Sprinklered Maximum Area, m ²		
	Facing 1 Street	Facing 2 Streets	Facing 3 Streets
1	9 000	11 250	13 500
2	4 500	5 625	6 750
3	3 000	3 750	4 500
4	2 250	2 812	3 375
5	1 800	2 250	2 700
6	1 500	1 875	2 250

11.3.2.11. Combustible Construction for Minor Repairs

1) Where *additions* and new work are required to be *noncombustible construction* pursuant to Subsection 3.2.2., the *Chief Building Official* may permit minor repairs to existing floor or wall assemblies to be *combustible construction* provided

- a) the minor repair of the floor assembly does not exceed 5 percent of the *floor area* of the room in which it is located, and
- b) the minor repair of the wall assembly does not exceed 5 percent of the wall area of the wall plane on which it is located.

11.3.3. Spatial Separation Alternatives

11.3.3.1. General

1) Except for *additions* and new *construction*, where the exterior wall of a *building* is required by Parts 3 and 9 to be of *noncombustible construction*, the provisions of this Subsection may be used as an alternative to the spatial separation requirements of Parts 3 and 9.

11.3.3.2. Exterior Wall Construction

1) In a *building* of Group B or C *occupancy*, existing *combustible construction* may be retained in an existing exterior wall provided

- a) the wall has at least a 1 h fire-resistance rating,
- b) the *building* is *sprinklered*, and
- c) all voids in the wall are filled with *noncombustible* insulation and fire stopped.

2) In a *building* of other than Group B or C *occupancy*, existing *combustible construction* may be retained in an existing exterior wall provided the wall has at least a 1 h *fire-resistance rating*, and

- a) the *building* is *sprinklered*, or
- b) all voids in the wall are completely filled with *noncombustible* insulation and fire stopped.

3) When an existing exterior wall requires a 2 h *fire-resistance rating*, existing *combustible construction* may be retained provided

- a) the wall has at least a 1 h *fire-resistance rating*,
- b) the *building* is *sprinklered*, and
- c) all voids in the wall are completely filled with *noncombustible* insulation and fire stopped.

11.3.3.3. Exterior Cladding

1) Existing *combustible* cladding may be retained provided

- a) the *building* is *sprinklered* using fast-response heads,
- b) the exterior cladding is treated with *acceptable* exterior quality fire retardant intumescent paint, and
- c) all exterior windows contain wired or safety glass in steel frames.

11.3.3.4. Existing Unprotected Openings

1) Where the *limiting distance* is less than 900 mm, existing *unprotected openings* may be retained, provided

- a) the openings are constructed of glass block, wired glass, tempered glass or laminated safety glass, and the *building* is *sprinklered* using fast-response heads, or
- b) *acceptable* self-closing fire protection shutters are installed at the existing opening locations.

2) Except as provided in Sentence (3), where a *limiting distance* is 900 mm or more, existing *unprotected openings*, which have a total area exceeding the values listed in or extrapolated from Tables 3.2.3.1.B, 3.2.3.1.C, 3.2.3.1.D or 3.2.3.1.E, may be retained, provided

- a) the openings are constructed of glass blocks or wired glass, or
- b) the *building* is *sprinklered* with fast-response heads.

3) Existing *unprotected openings* in *dwelling units* may be retained, provided

- a) where the distance from the adjacent property line is 900 mm or more, no opening protection need be provided, and
- b) where the distance from a bedroom window to the adjacent property line is less than 900 mm, protection as required in Sentence (2) shall be provided.

11.3.4. Alternatives for Fire Containment and Separation

11.3.4.1. Public Corridors

1) Existing *public corridor* walls, serving Group A Division 2, D, E, F Division 2 and F Division 3 *occupancies*, required to have a *fire-resistance rating* exceeding 45 min may be terminated at the underside of a 30 min ceiling membrane, where the public corridors are equipped with *acceptable smoke detectors* connected to the *building* fire alarm system.

11.3.4.2. Occupancy and Suite Separations

1) Existing vertical *occupancy fire separations* and *suite fire separations* in Group A Division 2, D, E, F Division 2 and F Division 3 *occupancies*, need not exceed a 1 h *fire-resistance rating* provided *acceptable smoke detectors* are installed on each side of such separations and are connected to the *building* fire alarm system.

11.3.4.3. Alternative to 20 Minute Doors

1) An existing door assembly may be retained in place of a required door assembly with a 20 min *fire-protection rating* provided

- a) a solid core wood door has a minimum thickness of not less than 45 mm, or
- b) a hollow core or panel type *suite* door has a layer of gypsum wallboard on the *suite* side covered by a minimum 0.9 mm thick sheet steel which extends over the edges of the door.

11.3.5. Alternatives for Exits

11.3.5.1. General

1) Except as permitted in Articles 11.3.5.2. and 11.3.5.3. and in Subsection 11.3.6., every *floor area* or other space shall be served with *exits* in conformance with Section 3.4.

11.3.5.2. Openings in an Exit Enclosure

1) A maximum of 2 *suite* doors or 2 room doors per *storey* may be located within an *exit* enclosure provided

- a) the *exit* enclosure is not required to have a *fire-resistance rating* of more than 1 h,
- b) the *suites* or rooms have a second and separate *means of egress*, and
- c) the *suite* or room doors have a *fire-protection rating* of 45 min, are self-closing and self-latching and do not lock automatically.

2) *Exit* stairs shall be enclosed as required in Subsection 3.4.4. except that existing *exit* enclosures may have

- a) wired glass set in steel frames conforming to Article 3.1.8.14. only in the portion of the enclosure which faces a *public corridor*, and
- b) in *sprinklered buildings*, *acceptable* hold-open devices actuated by *smoke detectors* and the *building* fire alarm system.

11.3.5.3. Group C Single Exit

1) A single *exit* is permitted from an existing non *sprinklered dwelling unit* provided

- a) the *exit* is an exterior doorway located not more than 1.5 m above adjacent ground level,
- b) the total area served by the *exit* door does not exceed 100 m²,
- c) the maximum travel distance within the *dwelling unit* does not exceed 15 m, and

d) it is not necessary to travel up or down more than one *storey* to reach the *exit* door, or the uppermost floor level opens from a common area to an unenclosed balcony or deck not more than 6 m above adjacent ground level.

11.3.6. Alternatives For Sprinklered Buildings

11.3.6.1. General

1) The alternatives in Articles 11.3.6.2. to 11.3.6.9. may be used in a *building* where

a) the *building* is *sprinklered* in conformance with Subsection 3.2.5., and

b) the *building* has a fire alarm system in conformance with Subsection 3.2.4.

11.3.6.2. Group C and D Fire Containment

1) In a building of Group C or D occupancy, which is not more than 3 storeys in building height, existing lath and plaster properly restored to its original condition, may be retained for a required fire separation with a *fire-resistance rating* of 45 min or less,

11.3.6.3. Occupancy Separations

1) The existing *fire-resistance rating* for an *occupancy* separation in a building need not exceed 1 h when the By-law requires 2 h for new construction, and need not exceed 45 min when the By-law requires 1 h for new construction.

11.3.6.4. Flame Spread Rating

1) The *flame-spread rating* for an existing wall or ceiling finish may be increased to 300 for not more than 25 percent of the wall or ceiling area, provided the wall or ceiling has no exposed foamed plastic.

11.3.6.5. Fire Dampers

1) Where a *fire separation* is permitted to have a 45 min *fire-resistance rating*, a *fire damper* is not required for existing *noncombustible* ducts less than 0.065 m² in cross-sectional area.

11.3.6.6. Plastic Sprinkler Piping

1) Plastic sprinkler piping may penetrate a vertical *fire separation* provided

a) the piping and its installation are listed by an *acceptable* testing agency, and

b) the piping is tightly fitted or fire stopped to maintain the integrity of the separation.

11.3.6.7. Smoke-Venting in High Buildings

1) Existing means of venting which are capable of removing smoke to aid fire fighting may penetrate exterior openings and existing shafts in adjacent fire compartments.

11.3.6.8. Alternatives for Dead-end Public Corridors

1) In a *building* provided with a *sprinkler system* with fast-response heads, existing public corridors which have *smoke detectors* installed and connected to the fire alarm system may

contain existing dead-end public corridors of lengths not exceeding 10 m to the nearest *exit* in Group C *occupancies* and 15 m to the nearest *exit* in Group D, Group E, Group F Divisions 2 and Group F Division 3 *occupancies*.

2) In a *building* containing *exits* conforming to Article 11.3.6.8., one existing dead-end public corridor per floor may be permitted provided

- a) the existing dead-end public corridor does not exceed the lengths specified in Sentence (1),
- b) each *exit* stair serving the existing dead-end *public corridor* contains a smoke barrier between each *storey*, which prevents smoke from entering stairways and allows access to other stairways, and which may have a door equipped with an acceptable hold-open device actuated by a local smoke detector circuit, and
- c) the *building sprinkler system* has fast-response heads.

11.3.6.9. Alternatives for Exits

1) Existing open *exit* stairways located at the ends of *public corridors* need not be enclosed provided

- a) the *building* does not exceed 3 *storeys* in *building height*,
- b) there is a smoke barrier located within each *public corridor* approximately midway between the *exit* stairways, which
 - i) has a door provided with an *acceptable* hold-open device actuated by the fire alarm system and *smoke detectors* on that floor,
 - ii) is constructed of either tempered or wired glass, or has a *fire-protection rating* of not less than 20 min, and
 - iii) is designed to retard the passage of smoke,
- c) the *public corridor* contains no dead-ends,
- d) the *public corridor* on both sides of the smoke barrier is continuously pressurized, and
- e) the *building sprinkler system* has fast-response heads.

2) Wired glass in steel frame exposure protection for exterior fire escapes need not be provided in an *existing building* provided

- a) there is at least one *exit* enclosure which conforms to this By-law and which leads directly to the exterior of the *building*,
- b) access to the fire escape is by means of a full-size door at each floor level,
- c) the fire escape leads directly to *grade* level or leads to *grade* level by means of an interior stair enclosure not less than 750 mm in width,
- d) a sprinkler head is located on the ceiling adjacent to and within 1 500 mm of each opening requiring protection, and
- e) the *building sprinkler system* has fast-response heads.

3) Where a *building* is provided with a *sprinkler system* with fast-response heads, existing *exit doors* may be retained provided they do not swing over stairs or significantly impede safe egress and the *Chief Building Official* is satisfied that the existing *exit door swing* and existing *exit* and corridor widths substantially comply with the requirements of Section 3.4.

Section 11.4 Alternative Acceptable Solutions for the Conversion of Existing Buildings

11.4.1. Application

11.4.1.1. Alternative Acceptable Solutions for Existing Conditions

- 1) The alternative acceptable solutions for conversions in this Section apply to existing conditions only and do not apply are not permitted to be applied to new work, which must conform to the requirements for new construction in this By-law.
- 2) Except as required by this Section, the alternative acceptable solutions in Section 11.3. may be applied to existing conditions for conversions.
- 3) except as required by this Section, where a building is a heritage building, the acceptable solutions in Section 11.5 may be applied to existing conditions for conversions.

11.4.2. Conversion of an Existing One-Family or Two Family Dwelling into Two or More Dwelling Units or a Community Care Facility

11.4.2.1. Alternative Acceptable Solution

- 1) The provisions in this Subsection may be applied as alternative acceptable solutions for existing conditions provided
 - a) the occupant load for a Special Needs Residential Facility does not exceed 10 persons in addition to staff,
 - b) the building is sprinklered in conformance to Article 3.2.5.13. of Division B,
 - c) firefighter access is in conformance with this By-law,
 - d) the building area is not more than 300 m², and
 - e) the building is upgraded in conformance with Article 11.2.1.2. of Division B.

11.4.2.1.2. Building Height

1) For the purposes of determining building height, a *one-family dwelling* constructed pursuant to a *building permit* issued prior to October 31, 1999 which is four storeys or less in height may be considered as 3 *storeys* in *building height*.

11.4.2.1.3. Exterior Wall Construction

1) Existing exterior wood-frame walls may be permitted to remain instead of required *noncombustible construction*, provided

- a) a minimum 45 min *fire-resistance rating* is provided, and
- b) all voids are filled with an *acceptable* insulation, which may include fibreglass batts.

11.4.2.1.4. Combustible Exterior Cladding

1) *Combustible* exterior cladding materials may be used instead of required *noncombustible* cladding provided the cladding has a *flame-spread rating* of not more than 25 and is under laid with a minimum layer of 12.7 mm exterior gypsum board sheathing, and provided the cladding material is

- a) aluminum panelling,
- b) *fire-retardant treated wood* panelling,
- c) fire-retardant treated cedar shakes or shingles, or
- d) vinyl siding.

11.4.2.1.5. Exterior Wall Openings

1) Where exterior walls and openings are required by Subsections 3.2.3. or 9.10.14. to have exposure protection, existing openings need only conform to Article 11.3.3.4. of Division B.

11.4.2.1.6. Fire Separations

- 1) Where a *fire separation* with a 45 min *fire-resistance rating* is required
- a) existing lath and plaster may be permitted when properly restored to original condition, and
 - b) fibreglass batts may be permitted instead of mineral fibre batts.

11.4.2.1.7. Exit Stair Width

1) If one interior *exit* stair measures no less than 900 mm in width, a second interior *exit* stair which measures no less than 750 mm in width may be permitted.

11.4.2.1.8. Sliding Doors

1) A sliding door may be permitted in an *access to exit* if it leads to an exterior *exit* stair or a fire escape either directly or by means of a deck or balcony.

11.4.2.1.9. Suite Doors

1) An existing *suite* door assembly need not meet the requirements for a 20 min *fire-protection rating*

- a) if the door is unglazed and in good condition, or
- b) if the door is glazed with wired or tempered glass.

11.4.2.1.10. Glass Transoms

1) Fixed wired glass or tempered glass transoms or side-lights in a *public corridor* need not meet the requirements for a *fire-protection rating*.

11.4.2.1.11. Existing Interior Finish

1) An existing interior finish in a *means of egress* need not meet other requirements of this By-law if the *flame-spread rating* of the finish does not exceed 150.

11.4.2.1.12. Fire Dampers

1) Ducts passing through *fire separations* need not be equipped with *fire dampers* if

a) the duct opening is less than 150 cm² in cross-sectional area, or

b) the duct work is constructed entirely of sheet steel and the duct opening measures not more than 1 000 cm² in cross-sectional area.

11.4.2.1.13. Pull Stations

1) Where a fire alarm system is required by Subsection 3.2.4., pull stations may be omitted if both the fire alarm system and the sprinkler water flow alarm are designed to notify the fire department in accordance with Article 3.2.4.8. of Division B.

11.4.2.1.14. Exterior Wall Openings

1) An existing exterior wall opening adjacent to an exterior *exit* stair or fire escape need not conform to Article 3.2.3.13. of Division B if the opening is glazed with wired or tempered glass in an aluminum or wood sash.

11.4.2.1.15. Single Exit

1) A single *exit* from a *dwelling unit* need not conform to Sentence 3.3.4.4.(3) if the *exit* serves only one *dwelling unit* and if the vertical travel distance from the uppermost floor level to the adjacent ground level does not exceed 6m.

11.4.3. Conversion of an Existing One-Family or Two Family Dwelling into a Small Special Needs Residential Facility or a Group Residence Facility

11.4.3.1. Alternative Acceptable Solution

1) An existing one-family dwelling building may be converted or partially converted to a Small Special Needs Residential Facility or a Group Residence Facility for not more than 6 persons provided

a) the requirements of Sentence 3.1.2.5.(4) of Division B are met,

b) the requirements of Sentence (2) are met, and

c) all unsafe conditions are corrected to an acceptable manner.

2) Notwithstanding Clause 3.1.2.5.(4)(c) of Division B, a building referred to in Sentence (1) need only be upgraded to conform to upgrade design levels F1, S1, N1, A2 and E2 as defined in the upgrade mechanism model in Division B Appendix A.

11.4.4. Conversion of an Existing One-Family or Two Family Dwelling into a Daycare Facility

11.4.3.1. Alternative Acceptable Solution

1) An existing one-family dwelling building may be converted or partially converted to a Community Care Facility for not more than 8 children provided

a) the requirements of Sentence 3.1.2.5.(4) of Division B are met,

b) the requirements of Sentence (2) are met, and

c) all unsafe conditions are corrected to an acceptable manner.

2) Notwithstanding Clause 3.1.2.5.(4)(c) of Division B, a building referred to in Sentence (1) need only be upgraded to conform to upgrade design levels F1, S1, N1, A2 and E2 as defined in the upgrade mechanism model in Division B Appendix A.

11.4.5. Conversion of a Portion of an Existing One or Two Family Dwelling into a Secondary Suite

11.4.5.1. . Alternative Acceptable Solution

1) Except as required in Sentence (2), where an existing one or two family dwelling is altered to create a secondary suite, the existing building shall conform to Table 11.4.5.1., provided the building was constructed under a building permit issued prior to June 22, 2004.

2) Where, the alteration in Sentence (1) includes an addition, then the addition shall conform to Part 9 of Division B.

3) Where an existing building was constructed after June 22, 2004, then the existing building and conversion shall conform to Part 9 of Division B.

4) Notwithstanding the requirements of Sentence 9.34.1.1. (1) of Division B, circuits and receptacles in the *secondary suite* shall have

a) a minimum of two kitchen counter duplex receptacles supplied by two appliance circuits, which receptacles may be wired on single circuits or a split circuit,

b) a minimum of two duplex receptacles located on different walls in each bedroom, and

c) a minimum of three duplex receptacles located on different walls in the living area.

5) Notwithstanding Clause 9.34.1.1.(2)(c) of Division B, a single existing panel board may supply electrical loads of the principal dwelling and the *secondary suite*, if the panel is located within the *building* in a common area accessible to all occupants of the *building*.

**Table 11.4.5.1.
Fire Safety Requirements
Forming Part of Article 11.4.5.1.**

Item	Item Details	Alternative Acceptable Solution
Windows	Existing and new	Original openings may remain and New openings to conform to Part 9
Fire Containment	Separation between <i>Secondary Suite</i> and Principal Dwelling	Fire resistant <i>combustible construction</i> ¹
	Heating ducts that penetrate <i>fire separations</i>	<i>fire dampers</i> not required
	Plumbing and sprinkler plastic piping	fire stopping not required
	<i>Suite</i> entry doors in separation between <i>secondary suite</i> and principal dwelling	Existing solid core doors and frames in good condition are <i>acceptable</i> if unglazed or if glazed with wired glass. Doors to be provided with closers
Exits	Egress from each <i>suite</i> Windows adjacent to <i>exits</i>	Minimum of a single conforming <i>exit</i> is required from both the principal dwelling and the <i>secondary suite</i> . No requirements
Flame Spread Rating	<i>Exits</i>	≤150
	Remainder of <i>building</i>	No requirement
Heating Systems	Furnace room enclosure	No separation required but provide proper combustion air and required clearances from all equipment ²
Smoke Alarms	Entire building	Interconnected <i>smoke alarms</i> to be provided outside every bedroom and at least one on every <i>storey</i> . Installed by permanent connections to an electrical circuit in conformance with Subsection 9.10.19. Division B. Provided with battery backup and manual silencing devices which will silence the alarm in conformance with Article 9.10.19.6. of Division B.
Stairs and Handrails	Entire building	Stair treads, rise and run to conform to Section 9.8. where existing stairs are considered to present an <i>unsafe condition</i> as determined by the <i>Chief Building Official</i> . All existing stairs to have at least one handrail in conformance with Subsection 9.8.7. of Division B

Guardrail Protection	Entire building	<i>Guards</i> to be provided around all stairways, balconies, landings, decks, and porches in conformance with Subsection 9.8.8. and Article 4.1.5.114. of Division B. Existing <i>guards</i> may be retained provided they are structurally sound and ≥ 900 mm high.
Existing Headroom	Entire building	May be reduced to 1980 mm over 80% of the <i>suite</i> area and all egress routes.
Unsafe Conditions	Entire building	Any condition within or around the building which could cause undue hazard or risk to persons to be corrected as directed by the <i>Chief Building Official</i> .

Notes

"Fire resistant *combustible construction*" mean existing lath and plaster in good condition, or minimum 13mm gypsum wallboard on wood studs at maximum 600 mm on centre. The Gas Code places restrictions on locating gas furnaces adjacent to sleeping rooms or bathrooms.

11.4.5. Enclosure of an Exterior Open Balcony in an Existing Residential Building

11.4.6.1. Alternative Acceptable Solution

- 1) An existing open balcony may be converted to an enclosed balcony if
 - a) required *suite fire separations* are provided,
 - b) spatial separations conform to this By-law,
 - c) travel distances conform to this By-law,
 - d) *guards* conform to this By-law,
 - e) exhaust ducts conform to this By-law,
 - f) light and natural ventilation are maintained and conform to this By-law,
 - g) all new structural work conforms to Part 4 of Division B,
 - h) high building measures (smoke-free refuge areas) are maintained,
 - i) the existing window/door wall assembly separating the suite from the existing open balcony is maintained, and
 - j) the suite is upgraded to an *acceptable* level as defined in the upgrade mechanism model in Division B Appendix A

11.4.6. Conversion of Space in an Existing Group F Division 2 Building into Artist Live/Work Studios

11.4.6.1. Alternative Acceptable Solution

1) *Artist live/work studios* are permitted in an *existing building* classified as a Group F, Division 2 occupancy if

a) the *building* is *sprinklered* with fast-response heads,

b) all suites are separated from the remainder of the building by a fire separation with a 1 h fire resistance rating and all floors are separated from each other by a fire separation with a 1 h fire resistance rating, except that a 45 min *fire-resistance rating* or existing lath and plaster in good repair is *acceptable* when the *building* is less than 4 *storeys* in *building height*,

c) the *exit* systems conform to Section 3.4. of Division B, except as permitted in Subsections 11.3.5. and 11.3.6.,

d) all *public corridors* conform to Article 3.3.1.4. of Division B, except as permitted in Subsections 11.3.4. and 11.3.6.,

e) the emergency lighting conforms to Subsection 3.2.7. of Division B,

f) a fire alarm and detection system conforming to Subsection 3.2.4. of Division B is installed in the building,

g) the building complies with the Fire By-law, if dust or fumes are produced in the studios,

h) the building complies with the Fire By-law and to the British Columbia Gas Safety Act, if flammable or *combustible* liquids or gases are stored or used in the studios,

i) the building is heated only by hot water, electrical equipment, or elevated gas-fired forced-air heaters, if dust or fume producing processes are used in the studios,

j) *service rooms* and storage rooms located outside of the studios conform to Section 3.6. of Division B,

k) the floor assembly is designed for a minimum live load of 3.6 kPa and the building conforms to the structural upgrade level S3 as defined in the upgrade mechanism model in Division B Appendix A,

l) the studios comply with the sound transmission requirements of Section 5.9 of Division B,

m) light and ventilation for the studio sleeping areas complies with Parts 5 and 6 of Division B,

n) shared washroom *facilities* comply with the requirements of the Standards of Maintenance By-law for lodging houses, and

o) the building is upgraded to an *acceptable* level as defined in the upgrade mechanism model in Division B Appendix A.

2) For the purpose of determining occupancy classification, artist live/work studios shall be considered to have an occupancy classification as defined Articles 3.1.3.3. and 3.1.3.4. of Division B.

11.4.7. Conversion of an Existing Hotel to Single Room Occupancies

11.4.7.1. Alternative Acceptable Solution

- 1) Single Room *occupancies* are permitted in an *existing building* classified as a Group C *major occupancy* (hotel) if
 - b) all suites are separated from the remainder of the building by a fire separation with a 1 h fire resistance rating and all floors are separated from each other by a fire separation with a 1 h fire resistance rating, except that a 45 min *fire-resistance rating* or existing lath and plaster in good repair is *acceptable* when the *building* is less than 4 *storeys* in *building height*,
 - c) the *exit* systems conform to Section 3.4. of Division B, except as permitted in Subsections 11.3.5. and 11.3.6.,
 - d) all *public corridors* conform to Article 3.3.1.4. of Division B, except as permitted in Subsections 11.3.4. and 11.3.6.,
 - e) the emergency lighting conforms to Subsection 3.2.7. of Division B,
 - f) a fire alarm and detection system conforming to Subsection 3.2.4. of Division B is installed throughout the building,
 - g) the floor assembly is designed for a minimum live load of 2.4 kPa and, notwithstanding Clause (j), the building conforms to the structural upgrade level S3 as defined in the upgrade mechanism model in Division B Appendix A,
 - h) shared washroom *facilities* comply with to the requirements of the Standards of Maintenance By-law for lodging houses,
 - i) the suites comply with the sound transmission requirements of Section 5.9 of Division B, and
 - j) the building is upgraded to an *acceptable* level as defined in the upgrade mechanism model in Division B Appendix A.

11.4.8. Conversion of an Existing Non-Strata Building to a Strata Property

11.4.8.1. Alternative Acceptable Solution

- 1) An existing building may be converted into 2 or more strata lots, if the entire building is
 - a) upgraded to design upgrade levels F4, S4, N4, A4 and E5 as detailed in the upgrade mechanism model in Division B Appendix A, and
 - b) fully sprinklered.

Section 11.5 Alternative Acceptable Solutions for Heritage Buildings

11.5.1. Application

11.5.1.1. Acceptable Solutions for Existing Conditions

- 1) This Subsection provides alternative acceptable solutions for the restoration and rehabilitation of *heritage buildings*.
- 2) The alternative solutions provided in Table 11.5.1.1. apply to existing conditions only and do not apply to new work which must conform to the requirements for new construction in other Parts of this By-law.

Table 11.5.1.1. Alternate Acceptable-Solutions for Heritage Buildings		
No.	By-law Requirement	Alternate Compliance Method
1	<p>Fire Separations 3.1.3.1.(1) and Table 3.1.3.1.; 9.10.9. 2 h <i>fire separation</i> required between some major <i>occupancies</i>.</p>	<p>Except for F1 <i>occupancies</i>, 1 h <i>fire separation</i> is <i>acceptable</i>, if the <i>building</i> is <i>sprinklered</i>.</p>
2	<p>Fire Separations 3.1.3.1.(1) and 3.1.3.1.; 9.10.9. 1 h <i>fire separation</i> required between some major <i>occupancies</i>.</p>	<p>1/2 h <i>fire separation</i> is <i>acceptable</i> if the <i>building</i> is <i>sprinklered</i>.</p>
3	<p>Noncombustible Construction 3.1.5. and 9.10.6.1. All materials used in <i>noncombustible construction</i> must be <i>noncombustible</i> unless otherwise permitted.</p>	<p>1. Roofs may be of <i>combustible construction</i> provided the <i>building</i> is <i>sprinklered</i>. 2. Up to 10% gross <i>floor area</i> to a maximum of 10% of any one <i>floor area</i> may be of <i>combustible construction</i> provided the <i>building</i> is <i>sprinklered</i>.</p>
4	<p>Fire-resistance Rating 3.1.7.1.(1); 9.10.3.1. Where a material, assembly of materials or structural member is required to have a <i>fire-resistance rating</i> it shall be tested in accordance with CAN/ULC-S101.</p>	<p>A <i>fire-resistance rating</i> may also be used based on: 1. HUD No. 8 Guideline on Fire Ratings of Archaic Materials and Assemblies. 2. Fire Endurance of Protected Steel Columns and Beams, DBR Technical Paper No. 194. 3. Fire Endurance of Unit Masonry Walls, DBR Technical Paper No. 207. 4. Fire Endurance of Light-Framed and Miscellaneous Assemblies, DBR Technical Paper No. 222.</p>
5	<p>Rating of Supporting Construction 3.1.7.5.; 9.10.8.3. Supporting assemblies to have fire resistance rating at least equivalent to that of the supported floor.</p>	<p><i>Heavy timber construction</i> is permitted to have a fire resistance rating less than would be required by the Code provided the <i>building</i>: (a) is <i>sprinklered</i>, and (b) does not exceed 6 <i>storeys</i> in <i>building height</i>.</p>

6	<p>Continuity of Fire Separations 3.1.8.3.(1) and (2); 9.10.9.2. <i>Fire separations</i> are required to be continuous above the ceiling space.</p>	<p><i>Fire separations</i> are not required to be continuous above the ceiling space where: (a) the ceiling space is <i>non-combustible construction</i>, (b) both fire compartments are <i>sprinklered</i>, or (c) the ceiling has a minimum rating of 30 minutes.</p>
7	<p>Wired Glass 3.1.8.5.(1) and 3.1.8.14.(2); 9.10.13.1. and 9.10.13.5. 6 mm wired glass in steel frame required in <i>fire separations</i>.</p>	<p>For fixed transoms or sidelights, 6 mm wired glass fixed to a wood frame of at least 50 mm thickness with steel stops is permitted in a required <i>fire separation</i>.</p>
8	<p>Mezzanines 3.2.1.1.(3) to (6); 9.10.4.1. <i>Mezzanines</i> enclosing more than 10% above the horizontal plane are considered as <i>storey</i> in <i>building height</i>.</p>	<p>Enclosed <i>mezzanines</i> may be up to 40% of the <i>storey</i> in which they occur and not be considered a <i>storey</i> in <i>building height</i> if the <i>building</i> is <i>sprinklered</i>.</p>
9	<p>Building Height 3.2.2.20. to 3.2.2.83. <i>Noncombustible construction</i> required for <i>buildings</i> over 3 <i>storeys</i> in <i>building height</i>.</p>	<p><i>Buildings</i> may be of <i>combustible construction</i> up to 6 <i>storeys</i> provided: (a) the <i>building</i> is <i>sprinklered</i> (b) the <i>building</i> contains Group C, D, E, F2 or F3 <i>occupancies</i>, and (c) floor assemblies not required to exceed 1 h <i>fire separation</i> requirements may be of <i>heavy timber construction</i>.</p>
10	<p>Spatial Separation 3.2.3.; 9.10.14. The area of <i>unprotected opening</i> shall not exceed the limits in Tables 3.2.3.1.A to 3.2.3.1.D.</p>	<p>The area of <i>unprotected opening</i> is not limited provided: (a) the <i>limiting distance</i> is a minimum 1 m, (b) the <i>building</i> has a supervised <i>sprinkler system</i> in conformance with Sentence 3.2.4.9.(2), and (c) the <i>sprinkler system</i> is connected to the fire department in conformance with Sentence 3.2.4.7.(4).</p>
11	<p>Construction of Exposing Building Face 3.2.3.7.; 9.10.14.5. The <i>exposing building face</i> is required to have a <i>fire-resistance rating</i> and/or be of <i>noncombustible construction</i>.</p>	<p><i>Exposing building face</i> is not required to have a <i>fire resistance rating</i> if the <i>building</i> is <i>sprinklered</i>. Also, the <i>exposing building face</i> is not required to be of <i>noncombustible construction</i> if it is protected by an exterior <i>sprinkler system</i> conforming to NFPA 13.</p>
12	<p>Roof Covering Rating 3.1.15.2.(1) Class A, B or C roof covering in conformance with CAN/ULC-S107 required.</p>	<p>For existing roofs not covered by a Class A, B or C roofing a manually operated deluge system in accordance with NFPA 13 is permitted.</p>
13	<p>Smoke Alarms 3.2.4.21.(5); 9.10.18.3.(1) <i>Smoke alarms</i> are required to be connected to an electric circuit.</p>	<p><i>Smoke alarms</i> may be battery operated in single family homes only.</p>

14	<p>Interconnected Floor Space 3.2.8.; 9.10.1.2.(6)</p>	<p>1. Open stairs in <i>buildings</i> of maximum 4 <i>storeys</i> in <i>building height</i> need not comply with Subsection 3.2.8. provided:</p> <ul style="list-style-type: none"> (a) the <i>building</i> contains a Group C or D <i>occupancy</i>, (b) the <i>building</i> is <i>sprinklered</i> with fast-response sprinklers, (c) corridors opening into the <i>interconnected floor space</i> are separated from the <i>interconnected floor space</i> by a <i>fire separation</i> with the rating required for the corridor, and (d) <i>smoke detectors</i> are installed in the rooms opening into the <i>interconnected floor space</i> and the <i>smoke detectors</i> are connected to the fire alarm system. <p>2. Open stairs in <i>buildings</i> of maximum 3 <i>storeys</i> in <i>building height</i>, or the first 2 <i>storeys</i> and basement, need not comply with Subsection 3.2.8. provided:</p> <ul style="list-style-type: none"> (a) the <i>building</i> contains a Group C or D <i>occupancy</i>, (b) the <i>building</i> is <i>sprinklered</i> with fast-response sprinklers, (c) <i>smoke detectors</i> are installed in the rooms opening into the <i>interconnected floor space</i> and the <i>smoke detectors</i> are connected to the fire alarm system, and (d) at least one <i>means of egress</i> is not through the <i>interconnected floor space</i>.
15	<p>Separation of Suites 3.3.1.1.; 9.10.9.13., 9.10.9.14. <i>Suites</i> are required to be separated from adjoining <i>suites</i> by 3/4 h or 1 h rated <i>fire separations</i>.</p>	<p>Existing <i>fire separations</i> of 1/2 h, such as wood lath and plaster in good condition, are <i>acceptable</i> in <i>sprinklered buildings</i> not exceeding 6 <i>storeys</i> in <i>building height</i>.</p>
16	<p>Corridor Fire Separation 3.3.1.4.; 9.10.9.15. <i>Public corridors</i> are required to be separated from the remainder of the <i>building</i> by a <i>fire separation</i> having a fire resistance rating of at least 3/4 h.</p>	<p>Existing corridors with 1/2 h <i>fire-resistance ratings</i>, such as wood lath and plaster in good condition, are <i>acceptable</i> in <i>residential occupancies</i> provided the <i>building</i>: (a) does not exceed 6 <i>storeys</i> in <i>building height</i>, and (b) is fully <i>sprinklered</i> with fast-response sprinklers.</p>
17	<p>Corridor Width 3.3.1.9. and 3.4.3.1.; 9.9.3.3. <i>Public corridors</i> and <i>exit corridors</i> are permitted to have a minimum width of 1 100 mm.</p>	<p><i>Public corridors</i> and <i>exit corridors</i> are permitted with a minimum width of 800 mm provided:</p> <ul style="list-style-type: none"> (a) the <i>occupant load</i> of the <i>building</i> is maximum 20 people, and (b) the <i>building</i> does not exceed 3 <i>storeys</i> in <i>building height</i>.

18	<p>Door Swing 3.3.1.10. and 3.4.6.11.; 9.9.6.5. Doors required to swing in the direction of <i>exit</i> travel.</p>	<p>Second egress door from a room is not required to swing in the direction of <i>exit</i> travel provided: (a) the <i>building</i> is <i>sprinklered</i> and the system is supervised in conformance with Sentence 3.2.4.9.(2), and (b) the <i>occupant load</i> of the <i>building</i> is a maximum of 100 people.</p>
19	<p>Stairs, Ramps, Handrails and Guards 3.3.1.13., 3.3.1.15., 3.3.1.17., 3.4.6.4.3.4.6.8.; 9.8.</p>	<p>Existing conditions that do not comply fully with the requirements are permitted if they are <i>acceptable</i> to the <i>Chief Building Official</i>.</p>
20	<p>Transparent Doors and Panels 3.3.1.18.; 9.6.6.2. Glass in doors and sidelights are required to be protected by <i>guards</i> and to be safety glass.</p>	<p>Existing glass or transparent panels that do not comply fully with the requirements are permitted if sufficiently discernible or <i>guards</i> are provided in hazardous situations.</p>
21	<p>Dead-end Corridors 3.3.1.9.(7); 9.9.7.2. Dead-end corridors are permitted to a maximum length of 6 m.</p>	<p>1. Dead-end corridors are permitted to a maximum length of 10 m in Group C <i>occupancies</i> provided: (a) the <i>building</i> is <i>sprinklered</i> with fast-response sprinklers, and (b) <i>smoke detectors</i> are installed in the corridor system. 2. Dead-end corridors are permitted to a maximum of 15 m in length in Group D, E, F2 and F3 <i>occupancies</i> provided: (a) the <i>building</i> is <i>sprinklered</i> with fast-response sprinklers, and (b) <i>smoke detectors</i> are installed in the corridor system.</p>
22	<p>Exits 3.4.2.1.; 9.9.8.2. <i>Floor areas</i> shall be served by not fewer than 2 <i>exits</i> except as permitted by 3.4.2.1.(2)</p>	<p><i>Floor areas</i> may be served by a single <i>exit</i> within the limits of 3.4.2.1.(2) provided: (a) the <i>building</i> does not exceed 3 <i>storeys</i> in <i>building height</i>, (b) the <i>building</i> is <i>sprinklered</i> with fast-response sprinklers, and (c) all <i>floor areas</i> are protected by a system of <i>smoke detectors</i> connected to a fire alarm system.</p>
23	<p>Reduction of Exit Width 3.4.3.3.(2); 9.9.6.1. Swinging doors in their swing shall not reduce the effective width of <i>exit</i> stairs and landings to less than 750 mm.</p>	<p>Existing swinging doors in their swing are permitted to reduce the effective width of <i>exit</i> stairs and landings to a minimum of 550 mm provided: (a) they serve Group C or D <i>occupancies</i>, (b) the <i>building</i> does not exceed 4 <i>storeys</i> in <i>building height</i>, and (c) the <i>building</i> is <i>sprinklered</i>.</p>

24	<p>Fire Separation of Exits 3.4.4.1; 9.9.4. 3.4.4.1.; 9.9.4. <i>Exits</i> are required to be separated from the remainder of the <i>floor area</i> by a <i>fire separation</i> having a <i>fire-resistance rating</i> of not less than 3/4 h.</p>	<p>1. <i>Buildings</i> of 3 <i>storeys</i> or less may have <i>exits</i> that are separated by a <i>fire separation</i> that does not have a <i>fire-resistance rating</i> provided: (a) the <i>building</i> is <i>sprinklered</i> with fast-response sprinklers, and (b) the <i>sprinkler system</i> is supervised in accordance with Sentence 3.2.4.9.(2). 2. <i>Buildings</i> not exceeding 6 <i>storeys</i> in <i>building height</i> may have <i>exits</i> that are separated by a 3/4 h <i>fire separation</i> provided the <i>building</i> is <i>sprinklered</i>.</p>
25	<p>Exits Through Lobbies 3.4.4.2.; 9.9.8.5. Rooms adjacent to the lobby are required to be separated by a <i>fire separation</i>.</p>	<p>Rooms adjacent to the lobby are not required to be separated by a <i>fire separation</i> provided: (a) the <i>floor area</i> is <i>sprinklered</i> with fast-response sprinklers, and (b) <i>smoke detectors</i> are installed in the adjacent rooms.</p>
26	<p>Rooms Opening into an Exit 3.4.4.4.(7); 9.9.5.9. <i>Service rooms</i> and ancillary rooms are not permitted to open directly into an <i>exit</i>.</p>	<p><i>Service rooms</i> and ancillary rooms may open directly into an <i>exit</i> provided: (a) the room is <i>sprinklered</i> with fast-response sprinklers, and (b) weatherstripping is installed on the door to prevent the passage of smoke.</p>
27	<p>Illumination of Exit Signs 3.4.5.1.(2); 9.9.10.5. <i>Exit signs</i> are required to be illuminated continuously while the <i>building</i> is occupied.</p>	<p>Where <i>exit</i> signage may compromise historic appearances, or authenticity of displays, <i>exit signs</i> may be installed to light only on an emergency condition, such as by the fire alarm system or due to power failure.</p>
28	<p>Clearance from Exit Doors 3.4.6.10.(1); 9.9.6.6. Stair risers shall not be closer than 300 mm from an <i>exit</i> door.</p>	<p>Except as permitted in Sentences 3.4.6.10.(2) or 9.9.6.6.(2), existing <i>exit</i> doors shall not extend beyond the first riser.</p>
29	<p>Fire Escapes 3.4.7.; 9.9.2.3. Fire escapes are required to conform to Subsection 3.4.7.</p>	<p>Existing fire escapes that do not completely conform to Subsection 3.4.7. are <i>acceptable</i> provided: (a) the fire escapes are <i>acceptable</i>, and (b) the <i>building</i> is <i>sprinklered</i>.</p>
30	<p>Fire Escape Construction 3.4.7.2.; 9.9.2.3.</p>	<p>Existing combustible fire escapes are permitted if the <i>building</i> is permitted to be of <i>combustible construction</i> by Part 3, Part 9 or by this table.</p>
31	<p>Protection of Fire Escapes 3.4.7.4.; 9.9.2.3. Openings in the exterior wall adjacent to the fire escape are required to be protected by closures.</p>	<p>Existing openings in the exterior wall adjacent to the fire escape are not required to be protected by closures provided: (a) the <i>building</i> is <i>sprinklered</i>, and (b) a sprinkler head is located within 1.5 m of the opening required to be protected by Sentence 3.4.7.4.</p>

32	Vertical Service Space 3.6.3.1. <i>Vertical service spaces</i> are required to be separated from the adjacent <i>floor area</i> by a rated <i>fire separation</i> .	Existing <i>vertical service spaces</i> that do not completely conform to the rated <i>fire separation</i> requirements are <i>acceptable</i> provided the <i>vertical service spaces</i> are <i>sprinklered</i> .
33	Height and Area of Rooms 3.7.1.; 9.5. The height and area of rooms are required to comply to minimum dimension requirements.	Existing rooms are not required to comply to the minimum dimension requirements of Subsection 3.7.1. or Section 9.5.
34	Washroom Requirements 3.7.2.; 9.31. Buildings are required to be provided with a minimum number of washroom fixtures.	Existing <i>facilities</i> are not required to completely comply to the requirements of Subsection 3.7.2. or Section 9.31. provided it is <i>acceptable</i> to the <i>Chief Building Official</i> .
35	Access for Persons with Disabilities 3.8.	Sentences 3.8.1.1.(3) and 3.8.4.1.(1) shall apply to <i>existing buildings</i> .
36	Seismic Anchorage of Exterior Decoration 4.1.8.	Existing exterior decorations are not required to fully comply to the anchorage requirements of Subsection 4.1.8. provided: (a) adequate means of protection is provided, or (b) there is no exposure to the public.
37	Mechanical Systems Part 6 and Part 7	Existing mechanical systems in <i>buildings</i> are not required to fully comply to the requirements of Parts 6 or 7 provided: (a) it is not an <i>unsafe condition</i> , and (b) it is <i>acceptable</i> to the <i>Chief Building Official</i> .

Section 11.6. Temporary Special Event Facilities and Emergency Shelters

11.6.1. APPLICATION

11.6.1.1. Alternative Acceptable Solutions for Existing Conditions

1) The alternative acceptable solutions in Section 11.3. may be applied to existing conditions, except as defined in Sections 11.6.2. and 11.6.3.

2) The alternative acceptable solutions in Section 11.5 may be applied to existing conditions in a heritage building, except as defined in Sections 11.6.2. and 11.6.3.

3) The word “temporary” when used in Section 11.6.2. in relation to special events means for a period not exceeding 2 months.

4) The alternative acceptable solutions provided in Table 11.6.3.1 apply to existing buildings used for temporary special events facilities and temporary emergency shelters and do not apply to new work, which must conform to the requirements for new construction in other Parts of this By-law.

11.6.2. Temporary Change of Occupancy

11.6.2.1. Temporary Change of Occupancy for Live Performances

1) Where the occupancy of an existing building or portion of an existing building is classified as Group E retail, Group F Division 2 production or rehearsal studio, wholesale, warehouse, or factory, or Group F Division 2 artist studio without living accommodations, the major occupancy may be changed to a temporary Group A Division 2 major occupancy for an *arts and culture live performance indoor event* if

a) the maximum *occupant load* is not more than 250 persons, or not more than 60 persons in an *artist studio*,

b) the *arts and culture indoor event* is located in the *first storey* or the *storey* below the first storey and has at least one *exit* that conforms to Clauses 3.8.3.19(1)(d) or (e) of Division B,

c) emergency lighting is provided in washrooms and in locations leading from the *arts and culture indoor event* to the *street* as described in Sentence 3.2.7.3.(1),

d) portable fire extinguishers are installed in accordance with the Fire By-law, with at least one extinguisher at the main entrance and at each egress door leading from the *arts and culture indoor event* floor area,

e) an approved fire emergency procedures and security plan with approved maximum *occupant load* is posted beside each portable extinguisher at the main entrance and at each egress door leading from the *arts and culture indoor event*,

f) the *building* is equipped with a fire alarm system, or *supervisory staff* are designated to monitor egress and *exit* doors and to carry out an emergency evacuation in accordance with approved fire emergency procedure, and

g) the *storey* below the *first storey* used for an *arts and culture indoor event* has a *sprinkler system*.

2) The floor of a *building* used for an *arts and culture indoor event* shall be

a) constructed of concrete supported by solid ground without suspended slab, or

b) certified by a *registered professional*, after a structural review, to be safe for *assembly occupancy* and designed to a minimum specified uniformly distributed live load of 4.8 kPa.

3) Cooking which generates grease-laden vapour is not permitted at an *arts and culture indoor event*, unless commercial cooking and ventilation equipment, installed under *permit* and conforming with Article 6.2.2.7. of Division B, is used.

4) An approved maximum *occupant load* from the Vancouver Fire and Rescue Services, and a Vancouver Police Department security assessment shall be obtained for *arts and culture indoor events* in accordance with Table 11.6.2.1.

5) The number of *exits*, designated *supervisory staff*, and *exit* signs for *arts and culture indoor events* shall be provided in accordance with Table 11.6.2.1.

Table 11.6.2.1. Requirements for Arts and Culture Indoor Events Forming Part of Sentences 10.1.1.10 (4) and (5)					
Occupant Load for Event	Occupant load Approval Required ⁽¹⁾	Minimum number of Exits Required	Exit Signage Required	Supervisory staff at Egress/Exit Door ⁽²⁾ Required ⁽²⁾	VPD Security Assessment Required ⁽⁵⁾
≤ 60 people for private SOL ⁽³⁾ or dry event ⁽⁴⁾	Yes	1	No	1	No
≤ 60 people for public SOL ⁽³⁾	Yes	1	No	1	Yes
61-250 people for private SOL ⁽³⁾ dry event ⁽⁴⁾ or public SOL ⁽³⁾	Yes	2	Yes	2	Yes

Notes

- 1) Vancouver Fire and Rescue Services will assess and approve the maximum temporary *occupant load* for *arts and culture indoor events*.
- 2) Supervisory staff is required to monitor all egress/*exit* doors. One *supervisory staff* must be provided at each required *exit* door at all times.
- 3) SOL means Special Occasion License issued by the British Columbia Liquor Control and Licensing Branch.
- 4) Dry event means an event at which there is no liquor service.
- 5) VPD means Vancouver Police Department.

11.6.3. Temporary Emergency Shelters

11.6.3.1. Additional Requirements for Emergency Shelters

- 1) Notwithstanding the provisions of this By-law, a temporary emergency shelter is permitted in an *existing building* provided
 - a) cooking is not permitted, except that food prepared off site may be re-heated at the site using a microwave,
 - c) all supervisory staff have first aid certification and training with respect to emergency evacuations,
 - d) there is a minimum of one supervisory staff person for each 20 shelter spaces on site 24 hours a day and 7 days a week,

- e) the number of shelter beds do not exceed one bed for every 3.7 m² of floor area or, if bunk beds are provided, two beds for every 3.7 m² of floor area ,
- f) there is an aisle measuring at least 900mm wide on each longitudinal side of every shelter bed or bunk bed,
- g) there are at least 2 *means of egress*,
- h) all *exit* doors are provided with *exit* signs,
- i) where it is not possible to see an *exit* sign over an *exit* door from within the shelter space, directional *exit* signs shall be provided,
- j) all *exit* signs comply with Subsection 3.4.5. of Division B,
- k) *smoke alarms* conforming to Article 3.2.4.20. of Division B are installed throughout the building,
- l) there is at least one water closet for every 20 temporary shelter spaces, and
- l) there is at least one lavatory for every 5 water closets.

11.6.2. Alternatives for Special Event Facilities and Emergency Shelters

11.6.2.1. Alternative Acceptable Solution

1) Table 11.6.3.1. provides alternative acceptable solutions for the temporary use of buildings for special events and emergency shelters.

Table 11.6.3.1. Alternate Acceptable Solutions for Temporary Special Events Facilities and Emergency Shelters		
No.	By-law Requirement Division B	Alternate Acceptable Solution
1	Flame Resistance 3.1.6.5.	Fabric tent material may conform to a) NFPA 701, "Standard Methods of Fire Tests for Flame Propagation of Textiles and Films", 2004 edition, or b) Certification of Registered Flame Resistant Product certified by the California Department of Forestry and Fire Protection, Office of the State Fire Marshall.
2	Fire Separation under Tiers of Seats 3.3.2.2.	A fire separation between the space and the seats is not required provided a) the only occupied space beneath the bleacher seating is used as a pedestrian walkway for access to the bleacher seating, b) the occupied space is not used for storage, signage must be posted in the space beneath the bleacher seating that reads "No Storage Permitted in This Area", and c) cleanup crews must clean up debris from the space beneath the bleacher seating at the end of each day.
3	Handrails 3.4.6.5.	Handrail extensions for temporary buildings may extend vertically downward not less than 300 mm beyond the top and bottom of the stairway.

4	<p>Guards 3.4.6.6.</p>	<p>Openings greater than 100 mm may be permitted in guards where</p> <ul style="list-style-type: none"> a) the guard serves stairs that are used only by staff or work force volunteers, and b) a triangular space created by the stair tread, stair rise, and the underside of the guard, provided the opening will not permit the passage of a sphere greater than 200 mm, in egress stairs that serve bleacher seating. <p>Member, attachment or openings located between 140 mm and 900 mm above the level being protected by the guard may be permitted where</p> <ul style="list-style-type: none"> a) the guard serves stairs that are used only by staff or work force volunteers, and b) rosettes in the vertical posts of scaffolding type bleachers have been installed.
5	<p>Treads and Risers 3.4.6.8.</p>	<p>In locations where it is not practical for persons with disabilities to work, stairs with no public access, may have</p> <ul style="list-style-type: none"> a) runs of not less than 250 mm between successive steps, b) risers between successive treads not less than 125 mm and not more than 190 mm, and c) open risers.
6	<p>Direction of Door Swing 3.4.6.12.</p> <p>Door Release Hardware 3.4.6.16.</p>	<p>Tent exit doors may be equipped with fabric flaps, tie straps, zippers, or VELCRO brand or equivalent hook and loop fasteners in lieu of doors that swing on a vertical axis provided</p> <ul style="list-style-type: none"> a) a minimum of two exit doors are be provided for each tent, b) the occupant load of the tent does not exceed 60, and c) security personnel are trained for emergency evacuation procedures, and remain in the vicinity of the exit at all times. <p>Temporary sliding gates may be used as exit doors provided</p> <ul style="list-style-type: none"> a) gates are left open during normal operating hours and always manned by security personnel, b) gates are closed during non-operating hours, and locked with chains and a padlock, c) operational procedures are in place to ensure that the chains and padlock are removed during operating hours, and d) security personnel are trained for emergency evacuation procedures.
7	<p>Environment Separation Part 5</p>	<p>Part 5 does not apply.</p>
8	<p>Commercial Cooking Equipment 6.2.2.7.</p>	<p>26 gauge galvanized sheet metal kitchen exhaust ducts with seams are permitted provided clean-out access panels are provided at all elbow locations and at 6 m spacing for straight runs.</p>
9	<p>Faucets and Shower Head Efficiency 10.3.1.1.</p>	<p>No restriction required.</p>
9	<p>Water Closet Efficiency 10.3.1.2.</p>	<p>No restriction required.</p>
11	<p>Urinal Efficiency 10.3.1.2.</p>	<p>All urinals shall conform to CSA B45 "Plumbing Fixtures" and shall have an average water consumption not exceeding 3.8 litres per flush cycle.</p>

12	Sanitary Connection 2.4.2.1. Book II	Portable water closets that form part of a temporary facility need not be connected to the sanitary drainage system.
13	Storm Drainage Connection 2.4.2.4. Book II	Roofs and paved areas need not be connected to the storm drainage system

C5 - Draft of Division B Appendix A - Article A-11.2.1.2. - "Existing Building Upgrade Mechanism"

DIVISION B APPENDIX A

A-11.2.1.2 EXISTING BUILDING UPGRADE MECHANISM

BACKGROUND AND INTENT. When work is carried out to an existing building, the Building By-law requires that the building be upgraded to an "acceptable" level. On April 20, 2004 Council approved a new model for determining the "acceptable" level of Building By-law upgrade for existing buildings undergoing alterations under the City's building permit process.

Prior to April 20, 2004, the upgrade mechanism was based primarily on construction values. The new upgrade trigger mechanism model determines the required "acceptable" level of upgrade for an existing building using the concept of "Project Types and Categories of Work".

The intent of the upgrade triggers is to provide a road map for building owners and designers to determine the required level of Building By-law upgrade for an existing building as a function of the project types and the related categories of work.

The upgrade mechanism is not intended for existing one-and two-family dwelling buildings. The upgrade requirement for these types of buildings is defined in Article 11.2.1.3.of Division B.

VOLUNTARY BUILDING BY-LAW UPGRADES. Where a voluntary upgrade for fire alarm systems, sprinkler systems, exits, accessibility, seismic work, building envelope repair or energy efficiency is performed, it is not the intent of this By-law to require the owner to further upgrade the building provided no other work is included in the project. If other work is included in the project, the upgrade requirement will only be based on the non-voluntary work proposed.

PROJECT TYPES AND THEIR RELATED CATEGORIES OF WORK

The upgrade mechanism is based on the following defined three Project Types and related Categories of Work as illustrated in Table 11.2.1.2.A

Table 11.2.1.2.A Project Types and Related Categories of Work			
Project Type	Rehabilitation <i>(See Flow Chart No. 1)</i>	Change of Major Occupancy <i>(See Flow Chart No. 2)</i>	Addition <i>(See Flow Chart No. 3)</i>
Categories of Work	Voluntary Upgrade Repair/Small Suite Minor Renovation Major Renovation Reconstruction	Change of Major Occupancy Classification Change of Major Occupancy Classification to a Small Suite	Major Horizontal Addition Minor Horizontal Addition Major Vertical Addition Minor Vertical Addition

REHABILITATION PROJECT TYPE (Flow Chart No. 1)

Voluntary Building By-law Upgrades – Voluntary Building By-law upgrades are limited to alterations for fire alarm, sprinkler, exit, accessibility, seismic, building envelope and energy efficiency work to an existing building.

REPAIR – Repair is the replacement of any part of an existing building with like or similar materials for the repair or maintenance of the building. Repair work also includes repair to a building due to fire damage or the installation of a new kitchen exhaust system; however, a change of use or reconfiguration of the interior space is not considered to be a repair. If the repair includes other categories of work or project types such as a change of use or

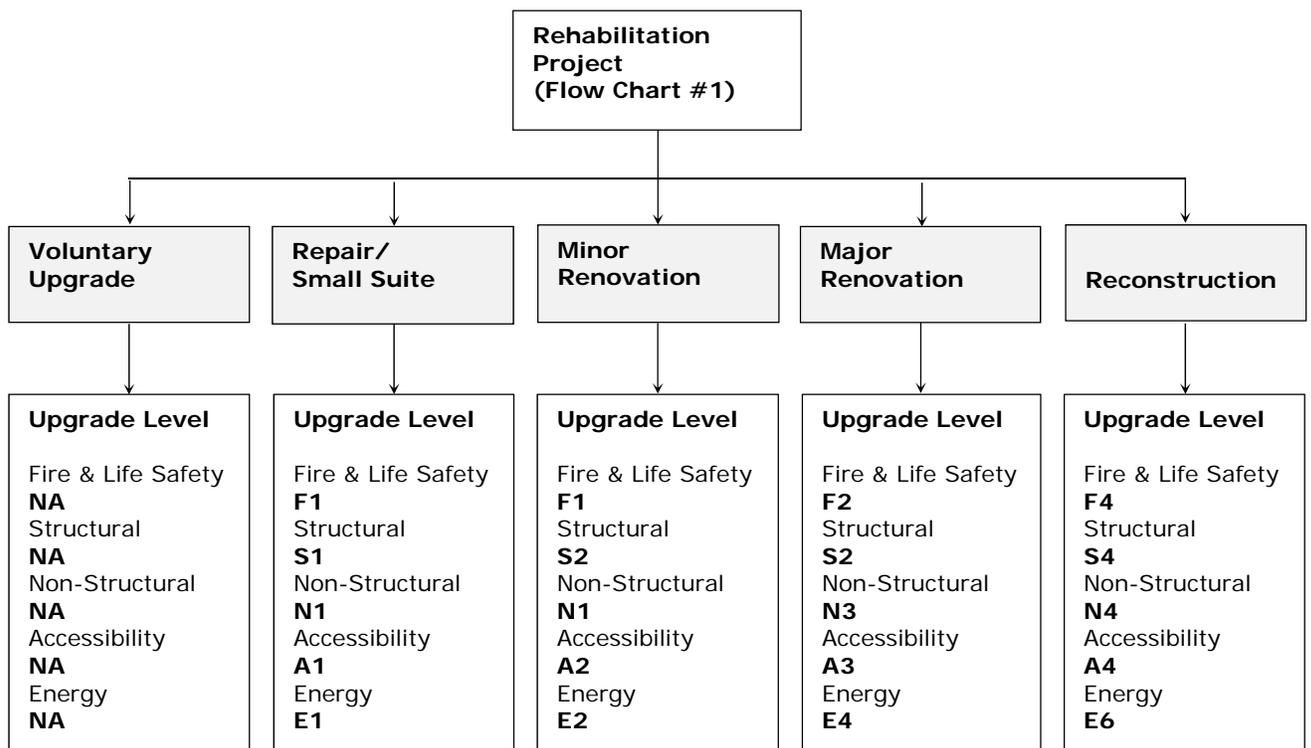
reconfiguration of the interior space, then the most restrictive upgrade levels from all project types would be applied.

MINOR RENOVATION – Minor renovations mean work within a single tenant space which may occupy multiple levels in a building. Minor renovations may include reconfiguration of the interior space of the suite as well as exterior renovations; however, a change of major occupancy classification is not considered to be a minor renovation type project. Where the renovation includes a new interconnected floor space or a new mezzanine, this work would not be considered to be a minor renovation. New mezzanines are considered to be additions. If the renovation includes other categories of work or project types such as a change of major occupancy classification or an addition (mezzanine), then the most restrictive upgrade levels from all project types would be applied.

MAJOR RENOVATION – Major renovations means work within multiple tenant spaces. Major renovations may include re-configuration of the entire interior space, which may include interconnected floor spaces, and exterior alterations; however, where the renovation includes a change of major occupancy classification or a new mezzanine, this work would not be considered to be a major renovation. New mezzanines are considered to be additions. If the renovation includes other categories of work or project types such as a change of major occupancy classification or an addition (mezzanine) then the most restrictive upgrade levels from all project types would be applied.

RECONSTRUCTION - Reconstruction means any project where: extensive renovations are being carried throughout the entire building and the building is completely gutted; where all drywall and plaster has been removed from the interior walls; all drywall, plaster, insulation and exterior cladding has been removed from the exterior walls ; and all floor and roof membranes and coverings have been removed. Reconstruction also includes substantial reconfiguration of the interior floor space. Reconstruction means exposing the building’s primary structure on all interior and exterior walls, floors and roof with only the primary structural elements remaining in place (building skeleton). Where work, which might otherwise be considered as reconstruction, is undertaken solely to facilitate the repair of a building due to envelope damage, insect infestation, mould abatement or asbestos abatement, then the work would not be considered a reconstruction and would be considered a repair, minor renovation or a major renovation as defined in this By-law.

FLOW CHART NO. 1



NOTES:

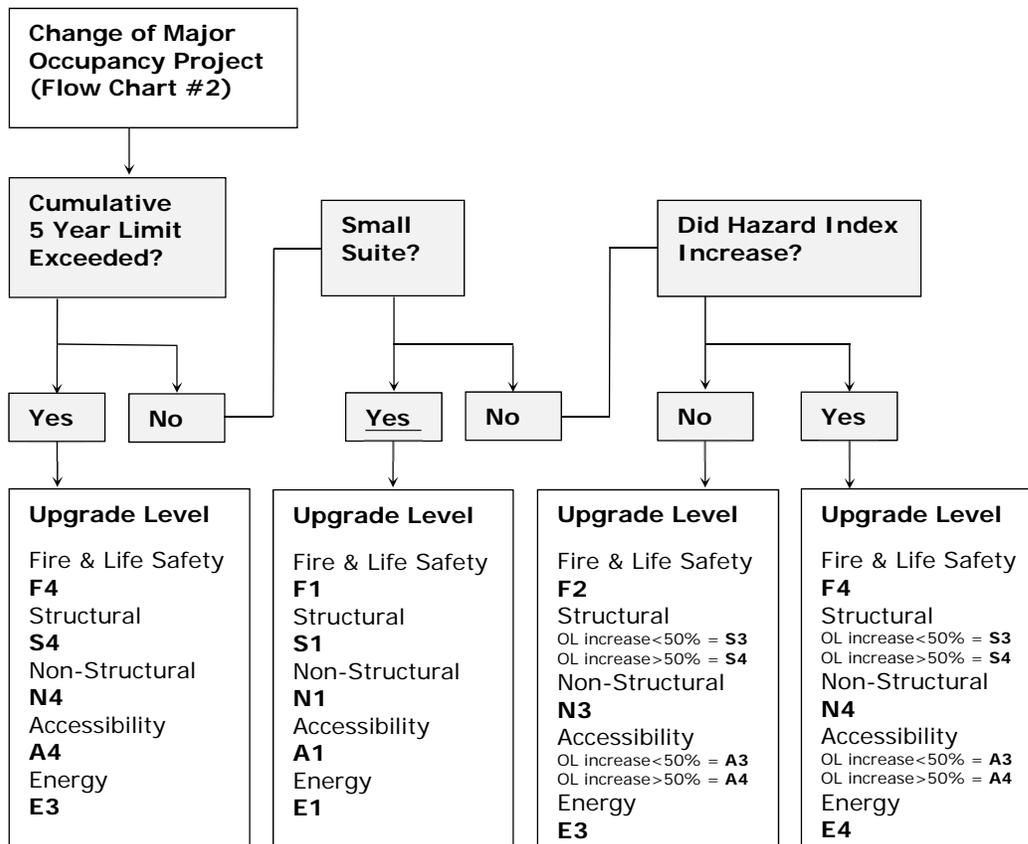
- (1) For small suites, the small suite must be separated on the suite side of the suite separation with at least two layers of gypsum wall board (GWB). Where only one layer exists, then an additional layer of GWB must be added to the suite side only. The additional layer of GWB may be any type of GWB with a minimum thickness of 13 mm.
- (2) Notwithstanding the upgrade levels in Flow Chart #1, where a minor renovation involves an entire building and the renovation includes the removal of all interior wall cladding (peripheral and interior) then the structural seismic upgrade level shall be S3.
- (3) Notwithstanding the upgrade levels in Flow Chart #1, where a major renovation involves an entire building and the renovation includes the removal of all interior wall cladding (peripheral and interior) then the structural seismic upgrade level shall be S3.

CHANGE OF MAJOR OCCUPANCY CLASSIFICATION PROJECTS (Flow Chart No. 2)

Change of Major Occupancy Classification – Change of major occupancy classification means a change of use within a building or a suite where the proposed use is outside of the defined uses of the existing major occupancy classification permitted for the building or the suite.

Small Suite Change of Major Occupancy Classification – Small suite change of major occupancy classification means a change of use within a building or a suite where the occupant load for the entire suite does not exceed 60 persons and the small suite is limited to a Group A, Division 2, Group D, Group E, Group F, Division 2 (wholesale showroom), or Group F, Division 3 major occupancy.

FLOW CHART NO. 2



NOTES:

1. Occupant load (OL) increase is based on the proposed occupant load for the entire building versus the original occupant load for the entire building at the time of construction **or** versus the current occupant load of the entire building. Occupant loads are to be determined by the acceptable solutions in Subsection 3.1.17. of Division B.

2. The Hazard Index may be determined by using the 2010 edition of the Ontario Building Code **or** the Hazard Index Table A-11.2.1.2.B.

3. For small suites, the small suite must be separated on the suite side of the suite separation with at least two layers of gypsum wall board (GWB). Where only one layer exists, then an additional layer of GWB must be added to the suite side only. The additional layer of GWB may be any type of GWB with a minimum thickness of 13 mm.

4. The cumulative 5 year limit is triggered when there is a change of major occupancy in an existing building and the aggregate area of the change in major occupancy within any 5 year period is greater than 50% of the building area (as defined in Article 1.4.1.2. of Division A) in a building of not more than one storey, or the aggregate area of the change in major occupancy within any 5 year period is greater than 100% of the building area (as defined in Article 1.4.1.2. of Division A) in a building of more than one storey.

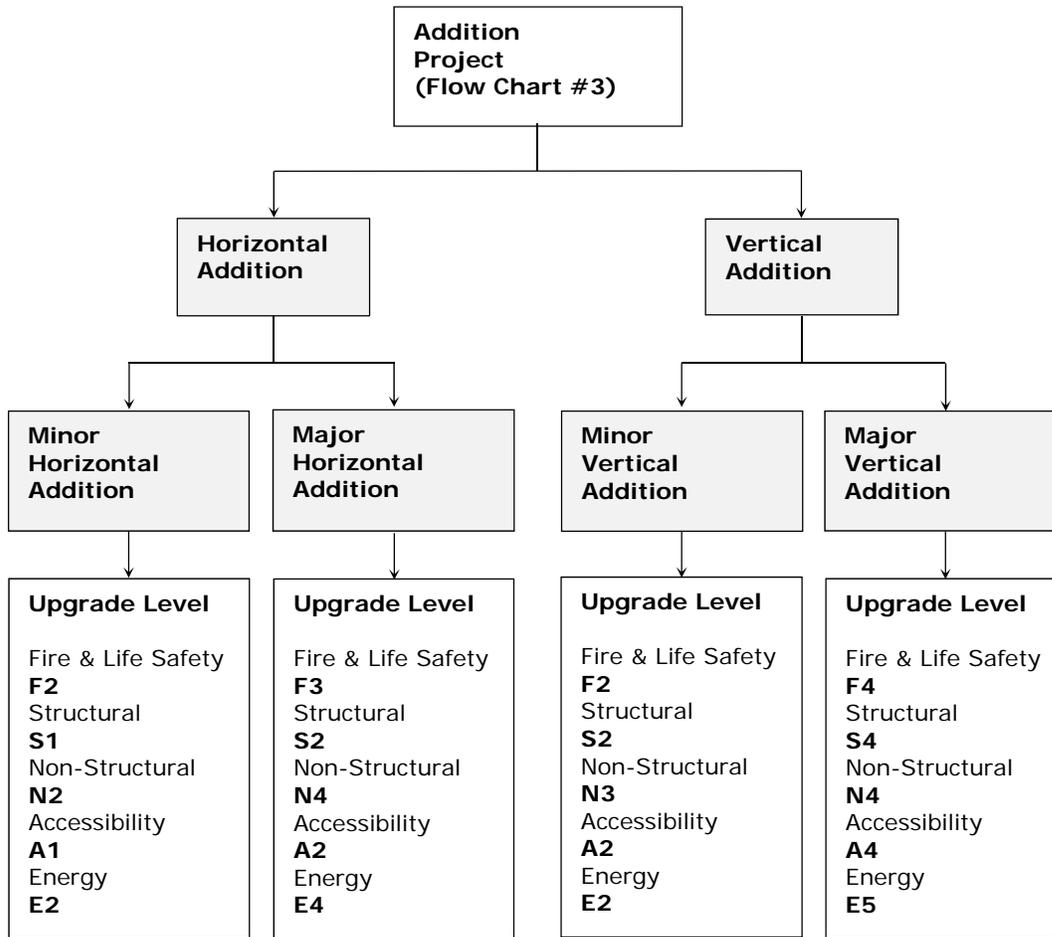
6. Where there is a change of major occupancy and the structural live loads for the new major occupancy are greater than the existing live loads required for the current major occupancy, then it must be demonstrated that the existing building has the structural capacity to carry the increase in live load (including seismic resistance) or the building shall be structurally upgraded to carry the increase in live load.

ADDITION PROJECTS (Flow Chart No. 3)

Horizontal Addition – Horizontal additions include both “minor” and “major” horizontal additions. A minor horizontal addition is an addition that adds a total aggregate *floor area* of not more than 25% of the existing *building area* or a total maximum aggregate *floor area* of less than or equal to 500 m². A major horizontal addition is an addition which adds a total aggregate *floor area* of more than 25% of the existing *building area* to the building or a total aggregate *floor area* of more than 500 m².

Vertical Addition – Vertical additions include both “minor” and “major” vertical additions. A minor vertical addition is an addition that adds another floor level (mezzanine or storey) with a total maximum aggregate *floor area* of not more than 25% of the *building area* or a total maximum aggregate *floor area* of less than or equal to 500 m². A major vertical addition is an addition that adds another floor level (mezzanine or storey) having a total aggregate *floor area* of more than 25% of the existing *building area* or a total aggregate *floor area* of more than 500 m².

FLOW CHART NO. 3



PROCEDURE FOR USING THE UPGRADE MECHANISM MODEL

The following steps outline a recommended procedure for using the upgrade trigger mechanism model.

STEP 1 – Determine the appropriate Project Type(s) and Related Category or Categories of Work as a function of the scope of work for the alteration.

Table 11.2.1.2.A Project Types and Related Categories of Work			
Project Type	Rehabilitation <i>(See Flow Chart No. 1)</i>	Change of Major Occupancy <i>(See Flow Chart No. 2)</i>	Addition <i>(See Flow Chart No. 3)</i>
Categories of Work	Voluntary Upgrade Repair/Small Suite Minor Renovation Major Renovation Reconstruction	Change of Major Occupancy Classification Change of Major Occupancy Classification to a Small Suite	Major Horizontal Addition Minor Horizontal Addition Major Vertical Addition Minor Vertical Addition

STEP 2 – Determine the Required Design Upgrade Level Based on the Category of Work for the Project

The required upgrade levels for fire, life & health safety; structural safety; non-structural safety; accessibility for persons with disabilities; and energy efficiency are to be determined using each of the applicable project type flow charts and the related category of work

For Rehabilitation Type Projects use Flow Chart No. 1.

For Change of Major Occupancy Type Projects use Flow Chart No. 3.

For Addition Type Projects use Flow Chart No. 4.

NOTE: Where a project involves more than one category of work, the most restrictive upgrade level, as determined from each category of work, shall determine the upgrade design level.

STEP 3 – Determine the objective and acceptable solution for the most restrictive upgrade level for fire, life and health safety; structural safety; non-structural safety; accessibility for persons with disabilities; and energy efficiency. The most restrictive upgrade levels are the design upgrade levels that are to be applied to the existing building.

The model is based on incremental upgrade levels for each of the fire, life and health safety (F), structural safety (S); non-structural safety (N); accessibility (A); and energy (E) objectives. For each of the upgrade levels, the model states the objective of the upgrade level as well as the corresponding acceptable solution that is deemed to meet the intended objective of the applicable upgrade level. The objective statement and acceptable solution for each F, S, N and A upgrade level is defined in Table A-11.2.1.2.B. The objective statement and acceptable solution for each E upgrade level is defined in Tables A-11.2.1.2.C and A-11.2.1.2.D.

The alternative acceptable solution for energy efficiency requires that the determined E design upgrade level is used to enter Table A-11.2.1.2.C to obtain a solution. The solution column in Table A-11.2.1.2.C provides an L level to enter Table A-11.2.1.2.D. Within the L Level row the user is provided with various ASHRAE section rows under the ASHRAE Section column. Each ASHRAE section row provides one or more alternative acceptable solutions under the Alternative Acceptable Solutions Options column. Each alternative acceptable solution is identified as a separate numeric solution. There are one or more alternative acceptable solutions for each ASHRAE Section row. The “Select 1-L1, 2-L2, ...” solution in Table A-11.2.1.2.C means that only one (1) of the alternative solutions in the Alternative Acceptable Solutions Options column or only two (2) of the alternative acceptable solutions in the Alternative Acceptable Solutions Options column and so on in Table A-11.2.1.2.D are required to meet the objective. It is up to the user to determine which section(s) in the ASHRAE Section column and corresponding alternative acceptable solution in the Alternative Acceptable Solution Option column is (are) used to satisfy the objective. Within any 5 year period, when an alternative acceptable solutions has been used previously within the project area, then that option is not permitted to be used as an alternative acceptable solution.

STEP 4 – Determine Any Other Requirements that may be Applicable. Other Building By-law requirements may be applicable to the existing building project. Review the Overall Conditions for the Upgrade Trigger Model to determine if other requirements are applicable.

DESIGN UPGRADE LEVEL TABLES

Table A-11.2.1.2.B DESIGN UPGRADE LEVELS FOR FIRE, LIFE AND HEALTH SAFETY (F), STRUCTURAL SAFETY(S), NON-STRUCTURAL SAFETY (N), and ACCESSIBILITY (A)		
DESIGN LEVEL	OBJECTIVE STATEMENT	ALTERNATIVE ACCEPTABLE SOLUTION
F1	Exiting to be reviewed to ensure that the exits do not present an unsafe condition.	Project Area - Exits to be upgraded with respect to number, capacity, and fire separations only.

S1	Proposed work must not have an adverse effect on the structural capacity of the existing structure.	Entire Building - Proposed work must not reduce the structural integrity of the existing building.
N1	Project area to be reviewed to ensure safety from overhead falling hazards.	Project Area - Restrain all ceiling supporting frames, T-bars assemblies, ceiling gypsum wall boards, all overhead mechanical ducts, and equipment, overhead electrical conduits and lights
A1	The proposed work must not adversely affect the existing accessibility level of the building.	Project Area - Existing level of accessibility must be maintained throughout the project area. No additional accessibility enhancements are required.
F2	Existing building to meet the fire & life safety requirements of the Building By-law within the project area and have conforming exits leading from the project area to an acceptable open space.	Project Area - Alarms and detectors (only where existing devices are provided), emergency lights, access to exit, exits, exit signs, and exit lights. Public Area (leading from project area to an acceptable open space) - emergency lights, exit signs, access to exit, exits, and flame spread ratings.
S2	Limited structural upgrade required in order to provide minimum protection to building occupants during a seismic event within the project area.	Project Area - Non-structural elements and falling hazards must be restrained to resist lateral loads due to earthquakes within the project area.
N2	Project area and means of egress to be reviewed to ensure safety from overhead falling hazards.	Project Area Means of Egress - Restrain interior partition walls. Restrain all ceiling supporting frames, T-bars assemblies, ceiling gypsum wall boards, all overhead mechanical ducts, and equipment, overhead electrical conduits and lights. Restrain cladding veneer, parapets, canopies and ornaments over exit and extended to 5 m on either side of exit
A2	A limited level of upgrade shall be provided within the project area to ensure access for persons with disabilities.	Project Area - door clearances, door hardware, and areas of refuge.
F3	Existing building to meet fire, life and health safety requirements within the project area. Existing building to meet fire, life & health safety requirements within the public areas.	Project Area – Alarms & detectors (only where existing devices are provided), emergency lighting, access to exit, exits, exit signs, exit lights, flame spread ratings, floor assemblies & supports, occupancy separation, standpipes and sprinklers, washrooms. Public Area - Alarms & detectors (only where existing devices are provided), emergency lighting, access to exit, exits, exit signs, exit lights. Entire Building – Fire fighter’s access.
S3	The building structure shall be upgraded to an acceptable level in order to provide a minimum level of property and life safety to unreinforced masonry or other buildings having less than 30 percent of the current required seismic resistance. Falling hazards over exits and sidewalks must be addressed.	Entire Building — Bolting floor and roof structure to bearing walls and strengthening of floor and roof diaphragms as required to safely distribute lateral forces to bearing walls (i.e., Bolts Plus) All falling hazards such as cornices, parapets and awnings located above exits and sidewalks must be restrained to resist forces due to a seismic event.

N3	Building exits and to acceptable open space to be reviewed to ensure safety from overhead falling hazards.	Entire Building Exits - Restrain interior partition walls. Restrain all ceiling supporting frames, T-bars assemblies, ceiling gypsum wall boards, all overhead mechanical ducts, and equipment, overhead electrical conduits and lights. Restrain falling hazards from cladding, veneer, parapets, canopies and ornaments over exit and extended to 5 m on either side of exit.
A3	The existing building shall be upgraded to an acceptable level in order to ensure complete access within the project area as well as access to the remainder of the building.	Project Area — Door clearances, door hardware, accessible washrooms, and areas of refuge. Public Area — Door clearances, door hardware, areas of refuge, washrooms, ramps, and elevators.
F4	Entire building to substantially meet the intent of health, fire and life safety requirements of the VBBL as well as provide protection to adjacent property.	Entire Building — Alarms & detectors, emergency lighting, access to exit, exits, exit signs, exit lights, flame spread ratings, firefighting access & water supply, floor assemblies & support, spatial separation, occupancy separation, standpipes & sprinklers, washrooms, high building requirements, lighting levels, sound transmission classifications, ventilation, and building envelope review.
S4	The entire building structure shall be brought up to an acceptable level in order to meet seismic requirements of the VBBL.	Entire Building — Building to be upgraded to resist 75 percent of the current By-law specified lateral force levels, where the building is evaluated as having less than 60 percent of the current required seismic resistance.
N4	Entire Building and to acceptable open space to be reviewed to ensure safety from overhead falling hazards.	Entire Building — Restrain all interior partition walls. Restrain all ceiling supporting frames, T-bars assemblies, ceiling gypsum wall boards, all overhead mechanical ducts, and equipment, overhead electrical conduits and lights. Restrain all falling hazards from cladding, veneer, parapets, canopies and ornaments attached to the exterior of the building.
A4	The existing building shall be upgraded in order to provide the minimum accessibility requirements of the VBBL.	Entire Building — Building to meet accessibility provisions of the current VBBL.

Note:

(1) Where there is one or more upgrade level(s) within the same category preceding the design upgrade level in Table A-11.2.1.2.B, then the design upgrade level shall also include all of the preceding upgrade levels. For example, where the design upgrade level is F3, then all of the upgrade requirements under F2 and F1 also apply.

TABLE A-11.2.1.2.C DESIGN UPGRADE LEVELS FOR ENERGY EFFICIENCY (E)			
Design Level	Objective Statement	Solution Location	Solution
E1	Review and maintain, or upgrade, basic energy efficiency equipment or components. Limit the probability of inefficient energy performance of <i>buildings</i> or <i>building</i> components	Project Area	Select 1-L1 in Table A-11.2.1.2.D (see notes)

E2	Review and maintain, or upgrade, a basic energy efficiency sub-systems. Limit the probability of inefficient energy performance of <i>buildings</i> or <i>building</i> components	Project Area	Select 1-L1 and 1-L2 in Table A-11.2.1.2.D (see notes)
E3	Review and improve energy performance of a basic energy efficiency system. Limit the probability of inefficient energy performance of <i>buildings</i> or <i>building</i> components	Project Area	Select 2-L3 and 2-L4 in Table A-11.2.1.2.D (see notes)
E4	Review and improve energy performance of an integrated energy efficiency system. Limit the probability that, as a result of the renovation of a <i>building</i> the use of energy will be inefficient	Project Area	Select 2-L3 and 2-L4 and 1-L5 in Table A-11.2.1.2.D (see notes)
E5	Review and bring to present VBBL energy requirements, entire HVAC system(s) affected by vertical addition. Limit the probability that, as a result of the renovation of a <i>building</i> the use of energy will be inefficient	Project Area	L6 (HVAC) in Table A-11.2.1.2.D (see notes)
E6	Reconstruct building to meet energy efficiency requirements of present Vancouver Building By-Law. Limit the probability that, as a result of the renovation of a <i>building</i> the use of energy will be inefficient	Entire Building	L7 in Table A-11.2.1.2.D

Notes:

The solution column in Table A-11.2.1.2.C provides the solution that will satisfy the objective. The solution column in Table A-11.2.1.2.C provides an L level to enter Table A-11.2.1.2.D. Within the L Level row the user is provided with various ASHRAE section rows under the ASHRAE Section column. Each ASHRAE section row provides one or more alternative acceptable solutions under the Alternative Acceptable Solutions Options column. Each alternative acceptable solution is identified as a separate numeric solution. There are one or more alternative acceptable solutions for each ASHRAE Section row. The “Select 1-L1, 2-L2, ...” solution in Table A-11.2.1.2.C means that only one (1) of the alternative solutions in the Alternative Acceptable Solutions Options column or only two (2) of the alternative acceptable solutions in the Alternative Acceptable Solutions Options column and so on in Table A-11.2.1.2.D are required to meet the objective. It is up to the user to determine which section(s) in the ASHRAE Section column and corresponding alternative acceptable solution in the Alternative Acceptable Solution Option column is (are) used to satisfy the objective. Within any 5 year period, when an alternative acceptable solutions has been used previously within the project area, then that option is not permitted to be used as an alternative acceptable solution.

BOMA BEST (Path 1) may be substituted as the solution for Design Level E2 and BOMA BEST (Path 2) may be substituted as the solution for Design Levels E3, E4 or E5. BOMA BEST is a Canadian industry standard for commercial building sustainability certification. Official certification documentation produced by BOMA would be required for acceptance as an alternative acceptable solution option.

The intent of the inclusion of the BOMA BEST rating system is to recognise the efforts made towards improved building performance. BOMA BEST Path 1 or Path 2 will be accepted provided

a) the BOMA BEST certification is administered by BOMA,

b) BOMA BEST Path 1 - BOMA BEST (Level 1, 2, 3, 4) provides proof of a valid Certification and ongoing commissioning per BOMA's BEST Practice Q.3 (Preventative Maintenance Program), and

c) BOMA BEST Path 2 - BOMA BEST (Level 1-AL2, 2, 3, 4) provides proof of a first-time Certification (to at least Level 1 with an ASHRAE Level 2 audit) within the previous 18 months, or a valid Certification and an increase in BOMA BEST's Energy Performance Benchmark Scale by at least one level within the previous 18 months, or advancing Certification (from one level to another) within the previous 24 months.

Proof means in the form of official certified documentation produced by BOMA, or a single Commissioning/Energy Report developed and provided by a qualified consultant, contractor, or other expert in this specialized field.

TABLE A-11.2.1.2.D Alternative Acceptable Solutions for Energy Efficiency		
L Level	ASHRAE Sections	Alternative Acceptable Solution Options
L1	Envelope	1) Reduce air leakage of all Vestibules (per 5.4.3.4 of ASHRAE 90.1 – 2010) 2) Upgrade all Opaque Doors performance (per 5.5.3.6 of ASHRAE 90.1 - 2010)
	HVAC	1) Upgrade Dead Band settings (per 6.4.3.1.2 of ASHRAE 90.1 - 2010) 2) Upgrade Set-point Overlap Restrictions (per 6.4.3.2 of ASHRAE 90.1 - 2010) 3) Upgrade Off-Hour Controls (per 6.4.3.3 of ASHRAE 90.1 - 2010) 4) Upgrade Ventilation System Controls (per 6.4.3.4 of ASHRAE 90.1 - 2010) 5) Upgrade Heat Pump Auxiliary Heat Controls (per 6.4.3.5 of ASHRAE 90.1 - 2010) 6) Upgrade Freeze Protection and Snow/Ice Melting Systems (per 6.4.3.8 of ASHRAE 90.1 - 2010) 7) Upgrade Ventilation Controls For High-Occupancy Areas (per 6.4.3.9 of ASHRAE 90.1 - 2010) 8) Upgrade Single Zone VAV Controls (per 6.4.3.10 of ASHRAE 90.1 - 2010) 9) Upgrade Heat and Cool Limitation (per 6.5.2.1 of ASHRAE 90.1 - 2010) 10) Inspect and remediate HVAC Insulation (per 6.4.4.1 of ASHRAE 90.1 - 2010) 11) Inspect and remediate Duct and Plenum Leakage (per 6.4.4.2 of ASHRAE 90.1 - 2010)
	SWH	1) Upgrade all SWH Piping Insulation (per 7.4.3 of ASHRAE 90.1 - 2010)
	Lighting	1) Upgrade internal Exit Signs to not exceed 5W per face (per 9.4.2 of ASHRAE 90.1 - 2010) 2) Functional Testing (per 9.4.4 of ASHRAE 90.1 - 2010)
	L2	Envelope

	HVAC	<p>1) Clean and Balance all Air Systems (per 6.7.2.3.2 of ASHRAE 90.1 - 2010)</p> <p>2) Balance all Hydronic Systems (per 6.7.2.3.3 of ASHRAE 90.1 - 2010)</p>
	SWH	<p>1) Upgrade SWH system Temperature Controls (per 7.4.4.1 of ASHRAE 90.1 - 2010)</p> <p>2) Upgrade SWH system Temperature Maintenance Controls (per 7.4.4.2 of ASHRAE 90.1 - 2010)</p> <p>3) Upgrade SWH system Outlet Temperature Controls (per 7.4.4.3 of ASHRAE 90.1 - 2010)</p> <p>4) Upgrade SWH system Circulating Pump Controls (per 7.4.4.4 of ASHRAE 90.1 - 2010)</p> <p>5) Upgrade Pool systems (per 7.4.5 of ASHRAE 90.1 - 2010)</p> <p>6) Upgrade pipe risers to incorporate Heat Traps (per 7.4.6 of ASHRAE 90.1 - 2010)</p>
	Lighting	<p>1) Upgrade to incorporate Automatic Lighting Shutoff (per 9.4.1.1 of ASHRAE 90.1 - 2010)</p> <p>2) Upgrade to incorporate Space Control systems (per 9.4.1.2 of ASHRAE 90.1 - 2010)</p> <p>3) Upgrade to control Parking Garage Lighting (per 9.4.1.3 of ASHRAE 90.1 - 2010)</p> <p>4) Upgrade all Automatic Daylighting Controls for Primary Sidelighted Areas (per 9.4.1.4 of ASHRAE 90.1 - 2010)</p> <p>5) Upgrade all Automatic Daylighting Controls for Toplighting (per 9.4.1.5 of ASHRAE 90.1 - 2010)</p> <p>6) Upgrade to incorporate Additional Controls for specialized lighting (per 9.4.1.6 of ASHRAE 90.1 - 2010)</p> <p>7) Exterior Lighting Control (per 9.4.1.7 of ASHRAE 90.1 - 2010)</p>
L3	Envelope	<p>1) Provide a Building Envelope Assessment Report, to be signed and sealed by a design professional, report to include: effective R-value, blower test, list of upgrades to achieve a compliance rating using COMcheck software version 3.9.2.</p> <p>2) Reduce air leakage of all Fenestration & Doors (per 5.4.3.2 of ASHRAE 90.1 - 2010)</p> <p>3) Upgrade all Below-Grade Wall Insulation (per 5.5.3.3 of ASHRAE 90.1 - 2010)</p> <p>4) Increase total Skylight Fenestration/Glazing Area (per 5.5.4.2.3 of ASHRAE 90.1 - 2010)</p> <p>5) Inspect and remediate all ceiling space and floor space equipment and services including ductwork, plumbing, insulation, penetrations, dampers, valves, coils, pans and drains.</p>
	HVAC	<p>1) Provide an HVAC System Assessment Report, to be signed and sealed by a design professional. Report to include: systems reviews, upgrade and re-commissioning options, with estimates for energy savings and cost paybacks.</p>

		<p>2) Upgrade all ducts, plenums, and insulation (per 6.4.4 of ASHRAE 90.1 - 2010); inspect and remediate HVAC Insulation (per 6.4.4.1 of ASHRAE 90.1 - 2010); and inspect and remediate Duct and Plenum Leakage (per 6.4.4.2 of ASHRAE 90.1 - 2010)</p> <p>3) Incorporate Exhaust Air Recovery systems (per 6.5.6.1 of ASHRAE 90.1 - 2010)</p> <p>4) Incorporate a Service Water Heating Recovery system (per 6.5.6.2 of ASHRAE 90.1 - 2010)</p> <p>5) Upgrade all Kitchen Exhaust and Replacement Air systems (per 6.5.7.1 of ASHRAE 90.1 - 2010)</p> <p>6) Upgrade all Laboratory Exhaust and Replacement Air systems (per 6.5.7.2 of ASHRAE 90.1 - 2010)</p> <p>7) Balance all systems (per 6.7.2.3 of ASHRAE 90.1 - 2010); clean and balance all air systems (per 6.7.2.3.2 of ASHRAE 90.1 - 2010); balance all hydronic systems (per 6.7.2.3.3 of ASHRAE 90.1 - 2010)</p>
	SWH	<p>1) Provide an HVAC System Assessment Report, to be signed and sealed by a design professional</p> <ul style="list-style-type: none"> • Report to include: systems reviews, upgrade and re-commissioning options, with estimates for energy savings and cost paybacks. <p>2) Upgrade SWH system Controls (per 7.4.4 of ASHRAE 90.1 - 2010)</p> <ul style="list-style-type: none"> • Upgrade SWH system temperature controls (per 7.4.4.1 of ASHRAE 90.1 - 2010) • Upgrade SWH system Temperature Maintenance Controls (per 7.4.4.2 of ASHRAE 90.1 - 2010) • Upgrade SWH system Outlet Temperature Controls (per 7.4.4.3 of ASHRAE 90.1 - 2010) • Upgrade SWH system Circulating Pump Controls (per 7.4.4.4 of ASHRAE 90.1 - 2010)
	Lighting	<p>1) Provide a comprehensive Lighting System Assessment Report to be signed and sealed by a design professional</p> <ul style="list-style-type: none"> • Report to include: systems reviews, upgrade options, with estimates for energy savings and cost paybacks. <p>2) Reduce total Skylight Fenestration/Glazing Area to 5% of gross roof area (per 5.5.4.2.2 of ASHRAE 90.1 - 2010)</p> <p>3) Upgrade total Exterior Lighting Power (per 9.4.3 of ASHRAE 90.1 - 2010)</p> <p>4) Meet the interior lighting power allowance by the Building Area Method (per 9.5 of ASHRAE 90.1 - 2010)</p> <p>5) Meet the interior lighting power allowance by the Space-by-Space Method (per 9.6 of ASHRAE 90.1 - 2010)</p>

	Envelope	<p>1) Reduce air leakage of entire Building Envelope (per 5.4.3 of ASHRAE 90.1 - 2010); reduce air leakage of all Fenestration & Doors (per 5.4.3.2 of ASHRAE 90.1 - 2010)</p> <ul style="list-style-type: none"> • Reduce air leakage of all Loading Dock Doors (per 5.4.3.3 of ASHRAE 90.1 - 2010) • Reduce air leakage of all Vestibules (per 5.4.3.4 of ASHRAE 90.1 - 2010) <p>2) For single retail/tenant spaces < 500 sq.m.) Perform an Air Leakage / Blower test and remediate</p> <p>3) Upgrade all Roof Insulation (per 5.5.3.1 of ASHRAE 90.1 - 2010)</p> <p>4) Upgrade all Above-Grade Wall Insulation (per 5.5.3.2 of ASHRAE 90.1 - 2010)</p> <p>5) For single retail/tenant spaces < 500 sq.m.) Replace storefront window(s) to meet the By-law.</p> <p>6) Reduce total vertical Fenestration/Glazing Area to 40% of gross wall area (per 5.5.4.2.1 of ASHRAE 90.1 - 2010)</p> <p>7) Upgrade all Fenestration/Glazing Performance (per 5.5.4.3 and 5.5.4.4 of ASHRAE 90.1 - 2010)</p> <p>8) Inspect and remediate roof systems including membrane, parapets, scuppers, drains, gutters, downspouts and drains.</p>
L4	HVAC	<p>1) Upgrade all Zone Thermostatic Controls (per 6.4.3 & 6.5.2.1 of ASHRAE 90.1 - 2010)</p> <ul style="list-style-type: none"> • Upgrade Dead Band settings (per 6.4.3.1.2 of ASHRAE 90.1 - 2010) • Upgrade Set-point Overlap Restrictions (per 6.4.3.2 of ASHRAE 90.1 - 2010) • Upgrade Off-Hour Controls (per 6.4.3.3 of ASHRAE 90.1 - 2010) • Upgrade Ventilation System Controls (per 6.4.3.4 of ASHRAE 90.1 - 2010) • Upgrade Heat Pump Auxiliary Heat Controls (per 6.4.3.5 of ASHRAE 90.1 - 2010) • Upgrade Freeze Protection and Snow/Ice Melting Systems (per 6.4.3.8 of ASHRAE 90.1 - 2010) • Upgrade Ventilation Controls For High-Occupancy Areas (per 6.4.3.9 of ASHRAE 90.1 - 2010) • Upgrade Single Zone VAV Controls (per 6.4.3.10 of ASHRAE 90.1 - 2010) • Upgrade Heat and Cool Limitation (per 6.5.2.1 of ASHRAE 90.1 - 2010) <p>2) Upgrade HVAC to incorporate Economizers (per 6.5.1 of ASHRAE 90.1 - 2010)</p> <p>3) Upgrade Heat Rejection Equipment (per 6.5.5 of ASHRAE 90.1 - 2010)</p> <p>4) Upgrade to Air and Service Water Heating Heat Recovery systems (per 6.5.6 of ASHRAE 90.1 - 2010)</p> <ul style="list-style-type: none"> • Incorporate Exhaust Air Recovery systems (per 6.5.6.1 of ASHRAE 90.1 - 2010) • Incorporate a Service Water Heating Recovery system (per 6.5.6.2 of ASHRAE 90.1 - 2010) <p>5) Upgrade entire Radiant Heating system (per 6.5.8 of ASHRAE 90.1 - 2010)</p>

		6) (Re-)Commission all systems (per 6.7.2.4 of ASHRAE 90.1 - 2010)
	SWH	1) Upgrade all Service Water Heating Equipment Efficiency (per 7.4.2 of ASHRAE 90.1 - 2010)
	Lighting	1) Lighting Control (per 9.4.1 of ASHRAE 90.1 - 2010) <ul style="list-style-type: none"> • Upgrade to incorporate Automatic Lighting Shutoff (per 9.4.1.1 of ASHRAE 90.1 - 2010) • Upgrade to incorporate Space Control systems (per 9.4.1.2 of ASHRAE 90.1 - 2010) • Upgrade to control Parking Garage Lighting (per 9.4.1.3 of ASHRAE 90.1 - 2010) • Upgrade all Automatic Daylighting Controls for Primary Sidelighted Areas (per 9.4.1.4 of ASHRAE 90.1 - 2010) • Upgrade all Automatic Daylighting Controls for Toplighting (per 9.4.1.5 of ASHRAE 90.1 - 2010) • Upgrade to incorporate Additional Controls for specialized lighting (per 9.4.1.6 of ASHRAE 90.1 - 2010) • Exterior Lighting Control (per 9.4.1.7 of ASHRAE 90.1 - 2010)
L5	Envelope	1) Upgrade insulation levels of entire Building Envelope (Opaque Areas) (per 5.5.3 of ASHRAE 90.1 - 2010) <ul style="list-style-type: none"> • Upgrade all Roof Insulation (per 5.5.3.1 of ASHRAE 90.1 - 2010) • Upgrade all Above-Grade Wall Insulation (per 5.5.3.2 of ASHRAE 90.1 - 2010) • Upgrade all Below-Grade Wall Insulation (per 5.5.3.3 of ASHRAE 90.1 - 2010) • Upgrade all Floor Insulation (per 5.5.3.4 of ASHRAE 90.1 - 2010) • Upgrade all Opaque Doors performance (per 5.5.3.6 of ASHRAE 90.1 - 2010) 2) Upgrade all Fenestration/Glazing (per 5.5.4 of ASHRAE 90.1 - 2010) <ul style="list-style-type: none"> • (For single retail/tenant spaces $\leq 500 \text{ m}^2$) Replace storefront window(s) to meet the By-law • Reduce total vertical Fenestration/Glazing Area to 40% of gross wall area (per 5.5.4.2.1 of ASHRAE 90.1 - 2010) • Reduce total Skylight Fenestration/Glazing Area to 5% of gross roof area (per 5.5.4.2.2 of ASHRAE 90.1 - 2010) • Increase total Skylight Fenestration/Glazing Area (per 5.5.4.2.3 of ASHRAE 90.1 - 2010) • Upgrade all Fenestration/Glazing Performance (per 5.5.4.3 and 5.5.4.4 of ASHRAE 90.1 - 2010)
	HVAC	1) Upgrade all HVAC Controls, Insulation and Leakage (per 6.4 of ASHRAE 90.1 - 2010)
	SWH	1) Upgrade Service Water Heating system to meet the Mandatory Provisions (per 7.4 of ASHRAE 90.1 - 2010); Upgrade all Service Water Heating Equipment Efficiency (per 7.4.2 of ASHRAE 90.1 - 2010)
	Lighting	1) Upgrade Lighting system to meet the Mandatory Provisions (per 9.4 of ASHRAE 90.1 - 2010)
L6	Envelope	1) Upgrade all aspects of Building Envelope (per Section 5 of ASHRAE 90.1 - 2010)
	HVAC	1) Upgrade all aspects of HVAC (per Section 6 of ASHRAE 90.1 - 2010)
	SWH	1) Upgrade all aspects of SWH (per Section 7 of ASHRAE 90.1 - 2010)
	Lighting	1) Upgrade all aspects of Lighting (per Section 9 of ASHRAE 90.1 - 2010)
L7	Energy	1) Upgrade existing building (per VBBL 1.3.3.7 Energy Use)

Notes:

- (1) COMcheck – software developed by the US Department of Energy for use with ASHRAE 90.1-2010 Building Envelope Trade-Off option
- (2) SWH – Service Water Heating
- (3) HVAC – Heating, Ventilating and Air Conditioning

HAZARD INDEX TABLE

The hazard index for various building uses are indicated in Table A-11.2.1.2.F.

The required level of Building By-law upgrade for a Change of Major Occupancy Type projects is dependent on whether or not the Hazard Index has increased for the proposed alteration. Hazard Index ratings are intended to reflect the level of fire and life safety risk to occupants for various building uses. Hazard index ratings range from 1 to 6, such that a hazard index of rating of 6 represents the highest risk to occupants.

Table A-11.2.1.2.F Hazard Index Table	
Group A Division 1	
Building Use	Hazard Index
Dinner Theatres	5
Live Theatres	5
Motion Picture Theatres	5
Opera Houses	5
Television Studios (With Audience)	5
Group A Division 1	
Building Use	Hazard Index
Art Galleries	4
Auditoria	4
Billiard Halls, Amusement Arcades	4
Bowling Alleys	4
Churches	4
Clubs, Lodges (Non-Residential)	4
Community Halls	4
Concert Halls	4
Court Rooms	4
Dance Halls	4
Daycare Centres	4
Exhibition Halls (Without Sales)	4
Exhibition Halls (With Sales)	See Group E
Gymnasias (Multi-Purpose)	4
Gymnasias (Athletic)	4
Lecture Halls	4
Libraries	4
Licensed Beverage Establishments	4

Licensed Clubs, Lodges	4
Museums	4
Passenger Stations/Depots	4
Recreational Piers	4
Restaurants (Seating Over 17)	4
Schools, Colleges	4
Undertaking Premises	4
Group A Division 3	
Building Use	Hazard Index
Arenas (No Occupancy On Activity Surface)	4
Armouries (No Occupancy On Activity Surface)	4
Enclosed Stadia or Grandstand	4
Ice Rinks (No Occupancy On Activity Surface)	4
Indoor Swimming Pools	4
Group A Division 4	
Building Use	Hazard Index
Amusement Park Structures	3
Bleachers	3
Grandstands (Open)	3
Reviewing Stands	3
Stadia (Open)	3
Group B, Division 1	
Building Use	Hazard Index
Detention Facilities (Minimum Security)	5
Detention Facilities (All other types of security)	6
Police Station with Detention (not meeting Article 3.1.2.4.)	4
Group B, Division 2	
Building Use	Hazard Index
Hospital, Nursing Home, Geriatric, Sanitarium (Immobile)	5
Hospital, Nursing Home, Geriatric, Sanitarium (Non-Ambulatory)	5
Psychiatric Hospitals (Maximum Confinement)	5
Psychiatric Hospitals (Minimum Confinement)	4
Police Station with Detention (Meeting Article 3.1.2.4.)	3
Group B, Division 3	
Building Use	Hazard Index
To be added – use OBC data	

Group C	
Building Use	Hazard Index
Apartments	4
Clubs, Residential	4
Colleges Residential	4
Congregate Care Housing for Seniors	5
Convents	4
Dormitories/Hotels	4
Hotels	5
Single Family Dwellings	2
Live/work units	5
Monasteries	4
Retirement Homes	4
Schools, Residential	4
Group D	
Building Use	Hazard Index
Advertising and Sales Offices	3
Automatic Bank Deposit	4
Barber/Hairdresser Shops	4
Beauty Parlours	4
Branch Banks	4
Car Rental Premises	3
Chiropractic Offices	4
Communications Offices (Telephone Exchange)	4
Communications Offices (Telex)	4
Communications Offices (Courier)	3
Computes Centres	4
Construction Offices	3
Costume Rental Premises	4
Dental Offices (Denture Clinic)	4
Dental Offices (General)	4
Dental Offices (Surgical/Anaesthesia)	5
Dry Cleaning Depots	4
Dry Cleaning Premises (Self-Serve)	4
Health/Fitness Clubs	4
Laundries (Self-Serve)	4
Massage Parlours	4
Medical Offices (Examination)	4
Medical Offices (Surgical Anaesthesia)	5
Offices (Business)	3

Offices (Charitable)	3
Offices (Legal/Accounting)	3
Offices (Design)	4
Pharmacy Offices	4
Photographic Studios	4
Physiotherapy Offices	4
Police Stations (No Detention)	4
Printing and Duplicating	5
Public Saunas	4
Radio Stations (No Audience)	4
Small Tool Rental Premises	4
Suntan Parlours	4
Veterinary Offices	4
Group E	
Building Use	Hazard Index
Automotive/Hardware Department Store	5
China Shops	4
Department Stores	5
Electrical Stores (Fixtures)	3
Exhibition Halls (With Sales)	5
"Fast Food" Outlets	4
Feed and Seed Stores	5
Flea Markets	5
Flower Shops	4
"Food" and Vegetable Markets	4
Garden Shops	4
"Gas" Bars	5
Gift Shops	4
Home Improvement Stores	5
Kitchen/Bathroom Cupboards Stores	4
Plumbing Stores (Fixtures/Accessories)	3
"Pop" Shops	4
Restaurants (Not More Than 30 Persons)	4
Shopping Malls	5
Stationery/Office Supply Stores	4
Stores (Art)	4
Stores (Baked Goods)	4
Stores (Beer)	4
Stores (Book)	4
Stores (Camera)	4

Stores (Candy)	4
Stores (Clothing)	4
Stores (Drugs)	4
Stores (Electronic)	4
Stores (Floor Coverings)	5
Stores (Food)	3
Stores (Furniture/Appliances)	4
Stores (Hardware)	5
Stores (Health)	4
Stores (Hobby)	4
Stores (Jewellery)	3
Stores (Paint/Wallpaper)	5
Stores (Pet)	4
Stores (Records/Tapes)	4
Stores (Spirits)	5
Stores (Toys)	5
Stores (Variety)	4
Stores (Video Sales/Rental)	4
Supermarket	4
Group F, Division 1	
Building Use	Hazard Index
All Uses	6
Group F, Division 2	
Building Use	Hazard Index
Aircraft Hangars	5
Abattoirs	4
Bakeries	5
Body Shop	5
Candy Plants	4
Cold Storage Plants with Flammable Refrigerant	5
Cold Storage Plants with Non-flammable Refrigerant and	4
Dry Cleaning Establishments (non-flammable or non-explosive)	4
Electrical Substations	4
Factories (High Fire Load)	5
Freight Depots (High Fire Load)	5
Laboratories (High Fire Load)	5
Laundries (not self-serve)	4
Manufacturer Sales (High Fire Load)	5

Mattress Factories	4
Meat Packing Plants	4
Packaging Manufacturers (Cellulose)	4
Packaging Manufacturers (Noncombustible)	3
Packaging Manufacturers (Plastics)	5
Paper Processing Plants (Wet)	5
Planing Mills	5
Printing Plants	4
Public Heritage Buildings	3
Repair Garages	5
Sample Display Rooms (High Fire Load)	5
Self Service Storage Buildings	4
Service Stations (no spray painting)	5
Storage Rooms (High Fire Load)	5
Television Studios (no audience)	4
Tire Storage	5
Warehouse (High Fire Load)	5
Welding Shops	5
Wholesale Rooms (High Fire Load)	5
Wood Working Factories	5
Workshops (High Fire Load)	5
Group F, Division 3	
Building Use	Hazard Index
Creameries	2
Factories (Low Fire Load)	3
Freight Depots (Low Fire Load)	3
Laboratories (Low Fire Load)	3
Manufacturers Sales (Low Fire Load)	3
Power Plants	4
Public Heritage Buildings	3
Sample Display Rooms (Low Fire Load)	3
Storage Garages	3
Storage Rooms (Low Fire Load)	3
Warehouse (Low Fire Load)	3
Wholesale Rooms (Low Fire Load)	3
Workshops (Low Fire Load)	3