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2017 Next Edition Building Code Consultation
c/o Building and Development Branch
Ministry of Municipal Affairs
16th Floor, 777 Bay Street
Toronto ON M5G 2E5

President
Ellen Wodchis
E-mail: president@opha.on.ca

Dear Sir/Madame,

Executive Director
Pegeen Walsh
E-mail: pwalsh@opha.on.ca

Re: EBR Registry Number: 012-8208 – Proposed Amendments to the Ontario Building Code

Constituent Societies

Association of Ontario
Health Centres

Association of Public Health
Epidemiologists in Ontario

Association of Supervisors of
Public Health Inspectors of Ontario

Canadian Institute of Public Health
Inspectors (Ontario Branch)

Community Health Nurses'
Initiatives Group (RNAO)

Health Promotion Ontario

Ontario Association of Public
Health Dentistry

Ontario Society of Nutrition
Professionals in Public Health

The Ontario Association of Public
Health Nursing Leaders

The Ontario Public Health Association (OPHA) appreciates the opportunity to provide input on proposed amendments to the Ontario Building Code (OBC). OPHA is pleased to see that several updates to the OBC address issues of importance to public health and safety including: safer housing (accessibility, egress, stairs, ramps and hand rails); improving structural integrity of buildings to be more resilient to the impacts of climate change; indoor air quality (mold prevention, radon and other gases); inclusion of retirement homes in many of the safety measures; provisions for electric vehicles; energy and water conservation; and sewage disposal. Health Units across Ontario will find these measures supportive of the work they do to ensure healthy and safe environments, whether it is through health promotion, health protection, policy development or partnership engagement.

Created in 1949, the Ontario Public Health Association (OPHA) is a not-for-profit organization committed to providing leadership on issues affecting the public's health and strengthening the impact of people who are active in public and community health throughout Ontario. Our mission is achieved by providing professional development, timely information and analysis on public health issues, access to multi-disciplinary networks, advocacy on healthy public policy and expertise and consultation.

With a mandate under the Ontario Public Health Standards to increase public awareness and assist community partners to develop healthy policies related to indoor air quality; outdoor air quality; extreme weather; climate change; exposure to radiation; extreme weather; and built environments, the public health sector plays an important role in supporting and contributing to efforts of multi-sector partners such as municipal building and by-law enforcement, housing providers and provincial ministries. Under the Ontario Public Health Standards, Public Health Units are also mandated to consider health inequities when accessing the needs of local populations. To that end, OPHA is pleased to see that the proposed changes to the Ontario Building Code include actions to assist low-income households and vulnerable communities.

Please find outlined in the attached Appendix comments related to the proposed amendments to the Ontario Building Code organized sequentially, based on the structure of headings in your ministry's Overview Summary Document. We would be pleased to discuss our feedback with you and provide any additional information.

OPHA applauds the Province of Ontario for proposing changes to the Ontario Building Code that support public health and safety and provide for healthy homes and indoor environments for all residents.

Thank you for consideration of our comments.

Sincerely,

A handwritten signature in black ink, appearing to read "P. Walsh". The signature is fluid and cursive, with the first letter of each word being capitalized and prominent.

Pegeen Walsh

Comments from the Ontario Public Health Association In Response to the Ontario Ministry of Municipal Affairs 2017 Next Edition Building Code Consultation

Long-Term Affordable Housing Strategy Supports in the OBC

OPHA recognizes the importance of healthy, safe and affordable housing to overall population health and strongly supports updates to the Ontario Building Code that align with the Long-Term Affordable Housing Strategy. Affordable housing can address social determinants of health and help reduce health inequities.

Retirement Homes

- P.7, Third Bullet: The recommendation made in this bullet “allowing for reduced corridor width and suite door size” may create corridors and doorways that are too narrow and may not be accessible by people with mobility aids that require doorways and hallways to be wider to allow for wider turns and travel paths. Consider, instead having wider corridors and doorways to allow for ease of passage for people of all ages and abilities with and without mobility devices.
- P.7: Consider installation of grab bars and handrails in all units and public/shared spaces, as appropriate, rather than installing them afterwards. Also, consider wider stairwells/stairways that have handrails on both sides to increase safety of the user.

With respect to protection from extreme heat, OBC requirements could be enhanced or introduced in Retirement Homes as the elderly are at increased health risks during extreme heat events. Requirements include those that increase energy efficiency and reduce the need for air conditioning, such as:

- External shades on windows
- Increased insulation
- Ceiling fans
- Effective, passive ventilation
- Windows that open wide high up to allow ventilation while preventing falls
- High albedo (cool, reflective) surfaces for the roof, envelope and surrounding site such as parking lots
- Shared cool rooms inside apartment buildings, to provide air conditioning to protect the health of the most vulnerable people who require active cooling
- Shared cool spaces outside apartment buildings, to provide shaded, treed spaces with seating as a refuge from overheated apartments
- A program to enable and encourage building managers to utilize the options in the OBC that prevent falls from windows but allow ventilation. The options are found in the current OBC (Section 3.3.4.8 Protection of Openable Windows) and in the Residential Tenancies Act (Section

25 Window Safety Devices). A program could be modelled on that of New York City, which includes an approved list of window guard manufacturers and products. Information on New York City's program is available at:

<https://www1.nyc.gov/site/doh/health/health-topics/window-guards-faq.page>.

Secondary Suites

- P.6 - Implementing the Long-Term affordable Housing Strategy Update: Some secondary suites (typically basement apartments) may not be accessible for older adults or those with mobility issues. Consider additional ways to increase the housing stock that would provide accessible and affordable housing options for older adults or those with mobility issues.
- P.8, last bullet: The installation of independent HVAC systems would be preferable from a health perspective, especially if another unit has a resident that smokes or has pets.
- P.10, under Fire Safety: Consider having stairwells/stairways that have handrails on both sides and a chair lift for those with mobility concerns.
- P.12, under Stairs, Guards, and Handrails, the last paragraph: How would the "...requirements for stairs, handrails, guards and ramps for new large and small buildings, including houses" be enhanced? Consider standardizing the design of buildings so that all buildings could have handrails and grab bars installed as part of the standard design, thus, people will be more likely to use it. What about requirements for existing homes being renovated, retirement homes, long-term care facilities, older adult buildings?

Age-friendly communities gives us a framework to consider the ages, stages and abilities of all residents (young, old and in between) when we build communities, homes and buildings from the perspective or lens of an older adult and plans accordingly. Age-friendly communities are a best practice approach to address a growing older adult demographic, chronic disease, injury prevention and aging in place. Consider aligning building codes with the features of an age-friendly community.

Accessibility

- P.14, first bullet, top of the page: Are there any amendments to the number of universal washrooms in small buildings? Consider using the installation of universal washrooms, grab bars and power doors in all buildings all the time.
- P.14, last bullet: Consider adding enhancement of adequate lighting to promote safety and prevent falls around stairs, ramps and edges of pools and platforms.

Protection of Ground and Surface Water Quality and Septic Maintenance

OPHA supports OBC requirements for homeowners to regularly pump private sewage disposal systems (Class 4) and keep records of maintenance of the system. OPHA also recommends that the Province promote programs on maintaining septic systems and wells (e.g. Lake Simcoe Conservation Authority well and septic upgrade program).

Radon Mitigation

OPHA strongly supports broadening the requirements of radon mitigation to the construction of all new houses across Ontario in Ontario's Building Code. The current scientific evidence shows that radon gas is a public health concern. Exposure to radon gas is known to increase the risk of lung cancer, and children are at an increased risk, as is often the case with toxic environmental exposures. A Cancer Care Ontario/ Public Health Ontario "Environmental Burden of Cancer in Ontario" Report estimated that 1,080 to 1,550 new cancer cases are attributed to radon annually.

<https://www.publichealthontario.ca/en/BrowseByTopic/EnvironmentalandOccupationalHealth/Pages/Environmental-Burden-of-Cancer-ON.aspx>

Expanding the mitigation requirement across the province is an important update because although there are certain geographical areas where radon is more likely to be found, it is possible for any home in Ontario to contain a build-up of radon. Regardless of a home's location radon can only be detected by testing, as radon is a colourless, odorless gas.

OPHA is supportive of the following revisions in regards to radon:

- Revision B-03-01-01 to radon mitigation, as radon is a growing concern across several geographies in Ontario based on 2012 Cross Canada Survey of Radon Concentration in Homes (Health Canada).
- More measures need to be taken in addressing potential radon exposure, including making mitigation measures easier for home owners. We are in support of the B-06-02-01 change. OBC provisions should include all of the radon protective provisions outlined in Parts 5, 6, and 9 and their corresponding appendices of the National Building Code, 2010 (Reference: Source: pages 29-32 of the CELA report http://www.cela.ca/sites/cela.ca/files/Radon-Report-with-Appendices_0.pdf)
- Best Practice Reference: City of Guelph Radon Gas Mitigation Program as a best practice for the OBC provision <http://guelph.ca/city-hall/building-permits-inspections/residential-building-permits/radon/>). In addition to including the federal Radon Guideline reference level (currently set at 200 Bq/m³) for all new construction and major renovations, these amendments should also require mitigation if the reference level is exceeded, and requirements that engineers and designers consider radon protection in their designs. Appendix Notes and Illustrations added in 2012 to elaborate on previous radon protective measures.

Structural Integrity

OPHA is supportive of efforts for both new builds and buildings undergoing renovation to be designed that support mitigation through greater energy efficiency and a reduction in emissions, and support adaptation by enhancing resiliency to the impacts of climate change. The Ontario Building Code can consider consulting resources created by [BOMA and the Institute for Catastrophic Loss Reduction Building Resilient Communities Designed for safer living standards guide](https://www.iclr.org/images/builders_guide_2010_final.pdf) https://www.iclr.org/images/builders_guide_2010_final.pdf

OPHA also recommends that buildings consider designs that reduce the impacts of extreme heat events, particularly in high rise buildings where high temperatures can impact dwellings in upper units without access to air conditioning.

OPHA supports the proposal to update the climatic data in the OBC. Ontario has experienced recent extreme weather events that have resulted in severe damage to homes and other buildings. OBC requirements should be based on forecasted future climatic conditions, rather than past or current climatic conditions. Standards for structural integrity should be based on future climatic conditions for all material and components used in the building envelope, roof, and other exterior elements.

Public Health and Safety - Indoor Air Quality

OPHA is supportive of additional measures in the OBC that will help improve indoor air quality in buildings and reduce exposure to air contaminants and other issues. Some of the proposed changes such as ensuring mechanical ventilation in dwelling units, using provincial standards and relevant best practices are important to help ensure better air quality for buildings in Ontario. We recommend that the Ontario Building Code consider standards and best practices as part of section 6.2.1.1. to include:

- ANSI/ASHRAE 62.1, “Ventilation for Acceptable Indoor Air Quality”
- *ASHRAE Indoor Air Quality Guide: Best Practices for Design, Construction and Commissioning*
- The Well Building Standard (WELL) <https://www.wellcertified.com/well>. This standard provides guidance which takes a holistic approach public health and safety from seven dimensions. This can be considered as a resource to inform the building code or a reference tool for proponents to consider best practices.

Further clarification is needed in section 6.2.2.4 regarding contaminants of concern, such as if this would include particulates and if 6.2.2.4 (1) only speaks to contaminants with sources within buildings. Many outdoor sources such as radon, outdoor air pollution, and soil gases may be perceived outside of scope.

OPHA is supportive of having minimum separation distances between exhaust and air intake openings as noted in 6.2.3.12. Recommended distances to major roads, freeways, and highways should consider recommending greater distances when possible. Research has shown pollutant levels to be higher 150m (ground level distance) from major highways. There is less research on vertical distances, but levels decrease significantly more vertically.

OPHA is supportive of minimum requirements for mechanical and ventilation requirements for dwelling units. As we do support efforts for more affordable housing such as secondary suites, we encourage the building code to ensure good practices for indoor air quality such as ventilation requirements. For instance, in many cases basement apartments do not have any ventilation in kitchen spaces.

As noted in the rationale for change for B-06-02-08 (Clarification of Air Contaminants) “There are currently no requirements to specify what is meant by ‘air contaminants’ and what jurisdiction is responsible for indoor environments.” Health Units across Ontario often receive complaints from residential units regarding air quality concerns; for example property managers turning off ventilation

systems in garages help reduce cost. Municipal building officials note that their scope of work is limited to newly constructed buildings and are unable to enforce the operation of ventilation systems of buildings. To address these types of issues, OPHA strongly recommends that the Building Code provide the authority for municipal officials to address operational issues in buildings pertaining to air quality.

Public Health and Safety - Ingress of Outdoor Air Pollution

The next edition of the Ontario Building Code should be informed by a review of whether the existing standards are sufficient to prevent the ingress of outdoor air pollution into buildings and support harmonization with the relevant provisions in the National Building Code. Transportation is a major source of air and noise pollution in urban areas. For residents who live and work near high volume transportation networks there are public health implications of exposure to air pollution (including traffic-related air pollution) which is likely to worsen due to climate change. With the population in the Greater Toronto and Hamilton Area (GTHA) expected to increase by 2.2 million people by 2031 it will be crucial that new and existing buildings conform to building code standards that can effectively limit the ingress of outdoor air pollution (including traffic-related air pollution) into living and work spaces.

Carbon Monoxide Alarms:

OPHA is supportive of the measures requiring installation of carbon monoxide alarms in relevant areas where combustion sources may be. An important consideration is for buildings to have appropriate safeguards during power outages. During the most recent ice storm that resulted in power outages, there were numerous cases of dwellings and home owners not safely using gas generators and appliances indoors resulting in carbon monoxide poisoning.

Public Health and Safety - Stairs, Guards and Handrails:

Regarding the design of stair runs and tread depths in homes/buildings to reduce falls and injuries, OPHA encourages designs that are based on the principles of universal design (i.e. buildings are inherently accessible to people of all ages and abilities), standard design (i.e. make certain features part of standard design practices, such as installing grab bars in every washroom regardless of age or ability), and inclusive design (i.e. services are accessible to and useable by as many people as possible without the addition of special adaptations). See British Columbia's age-friendly website (<http://www2.gov.bc.ca/gov/content/family-social-supports/seniors/about-seniorsbc/seniors-related-initiatives/age-friendly-bc/age-friendly-businesses>)

Promoting Electric Vehicle Use

OPHA is supportive of measures to increase usage of electric vehicles through increasing public awareness of the health, environmental and economic benefits. Some examples include,

- Mass media campaign recommended to address these current perceptions (e.g. use social media; YouTube videos; testimonials)
- Governments, including public health can play a lead role to champion the environmental health improvements (improved air quality, reduced GHG emissions to address climate change, reduced health care costs and improved health outcomes)

- Governments can play a lead role in promoting the economic benefits of EVs such as demonstrating the payback periods

The Province (page 19) asks: *“How should government proceed to support wider use of electric vehicles among residents of new multi-unit residential buildings?”*

In response, OPHA:

- supports the Province's proposals (page 19) that all new homes and townhouses with garages be required to have a suitable receptacle for charging an EV, and that all new office buildings and workplaces provide EV charging infrastructure. TPH also supports requiring all new multi-unit residential buildings (MURBs) to provide EV charging infrastructure on-site in parking areas.
- recommends that the Province provide, in partnership with the private sector, convenient public charging infrastructure at popular trip destinations, to eliminate range anxiety. Range anxiety is the driver's concern that the vehicle will run out of power before reaching the destination or charging station.
- recommends that the Province and its partners promote EV lifecycle cost savings. This promotion would be targeted to populations of frequent drivers with routine driving patterns who do not live near transit, for instance commuters living and working in the GTA.

Energy Efficiency

The Province (page 18) asks: *“How should government proceed to achieve these energy efficiency goals in new buildings, which would support GHG emission reductions in the building sector?”*

OPHA recommends that the Province:

- adopts the more stringent energy efficiency requirements in the proposed OBC for all buildings, accompanied by requirements that ensure adequate ventilation, improved indoor air quality and moisture control.
- introduces OBC changes for multi-unit residential buildings (MURBs) that manage future increases in extreme heat inside and outside the buildings. OBC changes in MURBs will help to prevent a predicted increase in premature deaths due to extreme heat, and help to minimize the predicted increase in energy consumption due to air conditioning. OBC requirements could be enhanced or introduced that increase energy efficiency and reduce the need for air conditioning. Examples include external shades on windows, increased insulation, ceiling fans, and passive ventilation. Another approach is to require high albedo (cool, reflective) surfaces for the roof, envelope and surrounding site such as parking lots.
- fast-tracks demonstration projects with private-sector partners to build highly energy efficient and net zero carbon emission buildings.
- provides targeted financing for the construction of buildings that significantly surpass OBC requirements for energy efficiency.
- considers OBC requirements for tankless and solar water heaters; LED lighting; green/white roofs; LEED requirements for new homes <http://www.cagbc.org/>; and green infrastructure.

The Province asks: *“Should areas of houses and large buildings undergoing significant renovation become more energy efficient, thereby helping to reduce its GHG emissions?”*

OPHA supports applying energy efficient requirements to significant renovation projects that would increase energy efficiency and reduce the need for air conditioning. For instance, when windows are replaced, external shades on windows could be required to reduce summer indoor extreme heat. Similarly, increased insulation, updated HVAC equipment, ceiling fans, passive ventilation, cool roofs, cool building surfaces, cool parking lots and other energy efficiency improvements could be required at the time the building system is renovated. Energy efficiency improvements could be applied through a separate Code for existing buildings to help enable energy efficiency improvements across the existing building stock. Any new requirements for existing buildings should be accompanied by funding and/or financing to enable the change without creating excessive financial pressure that affects affordability for building residents.

The Province (page 18) asks for *“advice on what preliminary actions the government should consider that could be implemented quickly... for example... Requiring drain water heat recovery units in all new houses”*.

OPHA supports OBC requirements that would recover drain water heat and other sources of clean energy that are currently wasted and could be harnessed.

Adapting to Climate Change

The Province (page 20) asks: *“Should government be updating the climatic data in the Building Code to reflect current weather conditions?”*

OPHA supports initiatives that will improve resiliency of buildings to climate change and protection of occupants from climate change health impacts such as extreme heat and extreme weather events. As indicated above, OPHA strongly supports updating the climatic data in the OBC and basing OBC requirements on forecasted future climatic conditions, rather than past or current climatic conditions. Updating climatic conditions in the OBC will increase building resiliency and longevity, which is both energy efficient and cost efficient.

The Province asks: *“What other elements should government consider to increase the ability of houses and buildings to better withstand the effects of extreme weather?”*

Buildings and their occupants need to adapt to increasingly hot summer weather. Buildings that are not built to meet these climatic conditions risk becoming stranded assets or buildings of last resort. In addition to extreme heat, buildings are also subject to damage from flooding and high winds and should be built or upgraded with withstand these weather events e.g. stronger roofer to withstand high winds, back-flow preventers to reduce damage from sewer overflows.

OPHA recommends introducing OBC changes for multi-unit residential buildings that manage future increases in extreme heat, by preventing the resulting increase in premature deaths due to extreme heat, and minimizing the resulting increase in energy consumption due to air conditioning. OBC requirements could be enhanced or introduced that increase energy efficiency and reduce the need for air conditioning, such as:

- External shades on windows

- Increased insulation
- Ceiling fans
- Effective, passive ventilation
- Windows that open wide high up to allow ventilation while preventing falls
- High albedo (cool, reflective) surfaces for the roof, envelope and surrounding site such as parking lots
- Shared cool rooms inside apartment buildings, to provide air conditioning to protect the health of the most vulnerable people who require active cooling
- Shared cool spaces outside apartment buildings, to provide shaded, treed spaces with seating as a refuge from overheated apartments
- A program to enable and encourage building managers to utilize the options in the OBC that prevent falls from windows but allow ventilation. The options are found in the current OBC (Section 3.3.4.8 Protection of Openable Windows) and in the Residential Tenancies Act (Section 25 Window Safety Devices). A program could be modelled on that of New York City, which includes an approved list of window guard manufacturers and products. Information on New York City's program is available at: <https://www1.nyc.gov/site/doh/health/health-topics/window-guards-faq.page>.

In addition, to help buildings and their occupants withstand extreme weather, OPHA recommends that the Province support the City of Toronto's "[Minimum Backup Power Guideline for multi-unit residential buildings \(MURBs\)](#)" which presents a number of opportunities to help improve resilience to area-wide power outages in MURBs, both existing and new.

Community Hubs:

The population in Ontario and around the world is aging and the number of older adults is expected to double in the next few years. Thus, consider adding amendments related to how the building code can support people to age in place (in their home or in their community) and support age-friendly communities. For example, this could include ways to keep renovation/building costs down should older adults need to renovate their home to accommodate changing abilities with age.

Potential barriers to converting a building space into a community hub would include the following:

- Building doesn't allow for accommodations to meet ADOA standards (which also promote age-friendly community designs) at a reasonable/affordable cost, such as accessible entryways, doorways, and hallways, and elevator(s) to accommodate mobility concerns for older adults and those that are disabled and families with strollers; handrails in hallways and stairways; grab bars in washrooms and multiple universal washrooms
- Capacity of the building to support large numbers of people in certain rooms or on the premises as a whole (e.g. sewage system capacity, water quality, occupancy maximum for elevators, rooms, the building, fire code etc.).
- Number of viable exits in the building in the event of emergency evacuation and the size of existing windows to be used as additional alternative exits, if needed.

- Location of the building (i.e. near a factory) as well as accessibility by multiple modes of transportation (walk, bike, car, transit, etc.).

Community hubs should also be located conveniently to allow for increased use of sustainable and active modes of transportation. By utilizing active design features in buildings, opportunities for incorporating regular physical activity into daily routines can be increased:

- Conveniently located stairs can increase stair use
- Locate building functions to encourage short bouts of walking with supportive, appealing walking routes to common areas
- Include physical activity spaces in commercial workplaces and residential buildings and provide supporting facilities such as showers, lockers, secure bicycle storage and drinking fountains
- Exterior building design and massing can contribute to a more pedestrian friendly environment

Reference: [Active Design Guidelines: Promoting Physical Activity and Health in Design](#)

Suggestions to aid in converting building space into community hubs, in the future, include ensuring that universal, inclusive and standardized design principles are used in the creation of buildings today, such as:

1. Reinforcing walls for the safe installation and use of handrails in stairways and throughout the building and grab bars in washrooms.
2. Consider adding assistive devices, such as grab bars and handrails as standard practice so that they don't need to be added later and anyone with balance/mobility concerns could make use of them whether the building is a school now or community hub later.
3. Allowed for ramps or level entrances for all exists/entrances.
4. Wide hallways, entryways and doorways.
5. Building located along a transit route, or was easy to access by multiple modes of transportation, offered access to green spaces as well as residential and commercial areas.