



December 18, 2023

Ministry of Municipal Affairs and Housing

Building and Development Branch
12th Flr, 777 Bay St,
Toronto, ON
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Canada

Subject: ERO 019-7832: Consultation on the 2025 National Construction Codes

The Ontario Society of Professional Engineers (OSPE) is the advocacy body and voice of the engineering profession. Ontario currently has over 85,000 professional engineers, 250,000 engineering graduates, 6,600 engineering post-graduate students and 37,000 engineering undergraduate students. Through OSPE's non-partisan, evidence-based approach to advocacy, we are recognized as a trusted advisor to government and regularly asked to provide input on policy, planning, and budget decisions.

OSPE is pleased to respond to *ERO 019-7832: Consultation on the 2025 National Construction Codes* and outlines a series of recommendations for inclusion in Ontario's 2026/27 Building Code. The recommendations are broken down into three categories and are outlined below:

1. Energy Efficiency,
2. Indoor Air Quality, and
3. Sustainability.

Energy Efficiency

1. Surplus Energy Storage and Usage:

- a. OSPE recently released our [Electricity Supply Mix Study](#), outlining estimates of surplus quantities expected in 2035—the year the electrical system is slated to achieve net-zero. These surplus amounts are anticipated to grow as other sectors of the economy approach net-zero by 2050.
- b. OSPE's projects **significant surplus quantities** of low-emission electricity and thermal energy in the coming years as we continue to decarbonize the electrical system. To harness this surplus productively, it is essential that our buildings, especially in higher density urban areas, are equipped to accommodate both **electrical and thermal storage capabilities** on-site and have provisions to tie into **district heating and cooling systems**.

- c. To maximize the utilization of these surpluses, we propose that building codes for new constructions include **explicit requirements for readiness to accommodate district heating and cooling services**, particularly in higher density urban areas. This readiness should extend to on-site thermal and electrical storage equipment. Presently, a significant challenge lies in the fact that space is not typically reserved for net-zero energy solutions, including storage systems, near existing electrical and thermal energy systems within buildings.

2. The 2020 National Model Code Tiers

- a. The absence of national climate-conscious building measures in the Ontario Building Code, namely the adoption of a singular tier of the National Energy Code for Buildings (Tier 1) and the National Building Code (Tier 3), **excluding the other tiers available** in the 2020 model codes, could lead to increased emissions, higher energy costs for homeowners, and long-term maintenance expenses.
- b. This approach also poses challenges for meeting ambitious targets, particularly the goal of achieving net-zero energy-ready (NZEr) standards by 2030. The province's plan means it would have to implement **significant and rapid increases in building energy requirements to meet a net-zero compatible standard by 2030**. Notably, this is at odds with the federal Emissions Reduction Plan, which assumed a move towards a net-zero standard by 2025.
- c. Furthermore, Ontario's decision to not to make the tiers available for municipalities to adopt independently **undermines the intended purpose of tiered codes**. Tiered codes are designed to offer a flexible and adaptable framework for jurisdictions, allowing them to select tiers that match their unique needs and market capacity while progressing towards the shared national goal of NZEr standards.
- d. **OSPE strongly recommends that the Ontario Building Code is updated to include all tiers of the 2020 National Model Codes** by following the phased approach in line with the tiered structure of the codes. This approach allows for incremental increases in building energy performance, providing a more flexible and adaptable framework for the industry. Additionally, **we recommend municipalities in Ontario be permitted to adopt higher tiers independently** based on their unique needs and market capacity.

Indoor Air Quality

3. Adopt ASHRAE-241:

- a. We express our strong support for the adoption of [ASHRAE Standard 241, Control of Infectious Aerosols](#), in the National Building Code and Ontario Building Code. Adopting this standard offers our best chance at pandemic-proofing our buildings and reducing airborne disease transmission, supporting the well-being of Canadians.
- b. Further support to OSPE's position on ASRAE-241 can be found [here](#).

4. Reduce fine particulate matter exposure:

- a. Canada currently has no limit on fine particulate matter exposure smaller than 2.5 micrometers (PM_{2.5}). Inhalation of these particles is proven to be dangerous for health, leading to heart disease, asthma, and low birth weight. Building codes should include measures to limit exposure to these particles.
 - i. OSPE recommends adding the following text based on the intent of [ASHRAE 62.1-2022 6.1.4.2](#):
*“Particulate matter filters or air cleaners shall have either
a. a MERV of not less than 11 where rated in accordance with ASHRAE Standard 52.2 or;
b. the minimum efficiency within ISO ePM2.5 where rated in accordance with ISO 16890.”*
- b. For further guidance on the danger of of PM_{2.5} exposure, see our letter to Health Canada [here](#).

Sustainability

5. Use of Sustainable, Reclaimed, or Low Carbon/Waste Materials in Design:

- a. The current National and Ontario Building Codes **lack explicit requirements for the use of sustainable, reclaimed, or low carbon/waste materials in design**. To promote environmental responsibility and sustainability in construction, it is imperative that the code incorporates guidelines mandating the use of such materials.

6. Embodied Carbon:

- a. Building codes should include provisions for **accounting for embodied carbon in the overall net design of structures**. This could involve calculating and limiting the embodied carbon of specific elements or annualizing these values.
 - b. Embodied carbon refers to the total greenhouse gas emissions associated with the extraction, manufacturing, transportation, and installation of building materials and components. Embodied carbon accounts for a significant portion of a building's total carbon footprint. By assessing and minimizing embodied carbon, construction projects can contribute to the overall reduction of greenhouse gas emissions, helping to mitigate climate change and promote environmental sustainability.
- 7. Insufficient Guidance for Assessment of Existing Structures:**
- a. The absence of comprehensive guidance for the assessment of existing structures under the Ontario Building Code contributes to **uncertainty and risk aversion among practitioners**. To address this, OSPE recommends the development and inclusion of an "Existing Structures Assessment Guide" within the code. This guide should offer clear directives on how to apply the Ontario Building Code to the assessment of existing structures, mitigating the tendency towards over-conservative design (for example, demolition and replacement of older structures with new structures to comply with new standards).
- 8. Direction on Testing of Existing Materials for Reclamation and Reuse:**
- a. The current codes **lack guidance** on how to appropriately test existing materials for designers interested in reclamation and reuse. This places an undue burden on engineers to develop testing regimes, leading to uncertainty and potential inconsistencies. To rectify this, the Ontario Building Code should incorporate guidelines on testing existing materials, **relieving engineers of unnecessary responsibility, and ensuring meaningful test results for design and analysis**.
- 9. Traditional Design Forms and Seismic Analysis Guidance:**
- a. The current National and Ontario Building Codes do not adequately accommodate traditional design forms, such as unreinforced masonry, in seismic analysis guidance. This oversight may lead to extensive and **unnecessary retrofitting of existing structures**. OSPE suggests inclusion of specific provisions that account for traditional design forms in seismic analysis guidance, ensuring a more realistic and efficient approach to retrofitting existing structures.

In conclusion, OSPE is honored to contribute to the consultation on the 2025 National Construction Codes and provide recommendations for the enhancement of Ontario's 2026/27 Building Code. Our evidence-based approach, grounded in the expertise of over 85,000 professional engineers and our commitment to non-partisan advocacy, positions OSPE as a trusted advisor to the government. We look forward to the incorporation of our recommendations in shaping a progressive and sustainable built environment for the province, prioritizing energy efficiency, indoor air quality, and overall sustainability.

For any further information, please contact Paola Cetares, Public Affairs Manager at pcetares@ospe.on.ca or Stefanie Black, Government Relations Coordinator, at sblack@ospe.on.ca.

Sincerely,



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