Low-Carbon Affordable Housing: Efficiency Meets Equity Webinar Summary

September 9, 2025 | Webinar Recording

Waterloo Region Housing's 420 Kingscourt Drive is a 73-unit building that provides comfortable and energy-efficient housing for lower-income residents. The building was designed with renewable energy and energy efficiency measures, including ground source heat pumps connected to an open-loop geothermal system and solar PV panels, integrated, and is expected to result in energy savings of approximately $54,000 annually, while reducing greenhouse gas emissions and net annual total energy use intensity. In this webinar, Tristan Wilkin, Supervisor, Affordable Housing Development and Brad Pick, Senior Project Manager, at Waterloo Region, will present on 420 Kingscourt Drive from project initiation through to development.

Presenters

- Tristan Wilkin, Supervisor, Affordable Housing Development, Waterloo Region
- Brad Pick, Senior Project Manager, Waterloo Region

Key Findings

- By eliminating on-site fossil fuel use, 420 Kingscourt achieved approximately a 47% reduction in energy load. The building also realized a 37% reduction in greenhouse gas emissions compared to the National Building Code.
- The building's Total Energy Use Intensity (TEUI) is 77.4 kWh/m^2. This is below the Green Municipal Fund grant threshold of 80 kWh/m^2.
- The presenters emphasized that early engagement with operational staff is crucial, starting in the design phase. Operational staff provide key insights on tenant behaviors, maintenance needs, and design considerations.
- Similarly, the presenters emphasized that engagement with tenants is just as critical. To address this, a Tenant Liaison Committee (TLC), composed of resident volunteers, was created to integrate tenant perspectives into design and decision-making processes.
- With new technologies implemented, ongoing education for both tenants and staff is necessary. Orientation sessions will guide tenants on operating in-unit systems (e.g., heat pumps and ERVs), while filmed training sessions are planned to help new operations staff understand and manage building systems as part of onboarding.

Presentation Overview

- 420 Kingscourt Drive is one of six projects within the Waterloo Region Housing Revitalization Plan (WRHRP) and is the first Waterloo Region-owned property to achieve the Canadian Green Building Council's (CAGBC) Zero-Carbon Building Design Standard.
- The WRHRP is a 10-year strategy for creating 600 new affordable housing units on existing properties.
- Through the WRHRP, 65 sites were evaluated for re-development. Parameters for evaluation included: Potential unit yield; condition of existing buildings; proximity to transit; impact on existing tenants; and community needs.
- The WRHRP outlines that development must be affordable, energy efficient, and accessible.
- The development's accessibility features include 19 fully accessible units, as defined by the Canada Mortgage and Housing Corporation (CMHC). Including roll-in showers, roll-under vanities, and doors with widths that accommodate mobility devices.
- The building uses a mixed-income structure. One third of units rent at Median Market Rent (MMR). One third rent below 80% of MMR. The final third are rent-geared-to-income, with tenants paying no more than 30% of household income.
- The building achieved CaGBC's Zero-Carbon Building Design Standard using electrification and high-efficiency systems. Each unit has a ground source heat pump as part of an open loop geothermal system.
- The building's high-performance envelope, which includes highly insulated and energy-efficient triple-glazed windows with frames designed to reduce heat transfer, along with rooftop solar photovoltaic (PV) panels and efficiency measures such as water-saving low-flow fixtures and energy-saving LED lighting, also contribute to achieving the Zero-Carbon Building Design Standard.
- Achieving the Zero-Carbon Building Design Standard resulted in an estimated 10% premium to the upfront construction cost.
- Electricity costs more than natural gas, so current utility bills are higher than gas-fired buildings. The project's financial model assumes that rising carbon prices and fossil fuel costs will make electrification cost-effective in the long run.
- The contractor was required to provide O&M manuals, and strict training on new systems like the geothermal equipment. Training programs will be filmed to educate new staff.

Additional Resources

- Waterloo Region Housing Revitalization Plan (WRHRP)
- Canadian Green Building Council Zero-Carbon Building Design Standard
- TransformWR (Waterloo Region's Community Climate Action Plan)
- Case study: Sustainable homes, stronger community
- Waterloo Region Housing Revitalization Plan Update (Council Report, 2024)
- 420 Kingscourt - 6 Storey Residential Development (Council Report, 2022)

- Sustainable Affordable Housing GMF funding (now closed).

Contact Information

Please reach out to us at any time with questions, input, or for additional information.

Lauren Patterson, Program Coordinator: lpatterson@cleanairpartnership.org

You can register for upcoming webinars on our Events page.