Karen's Place

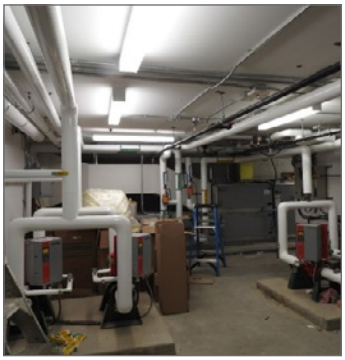
Ottawa, Ontario

Canada's First Affordable Multi-Residential Project to Be Certified Passive House

Karen's Place is a four-storey, 42-unit supportive housing apartment building developed by Ottawa Salus in Ottawa's Heron Park neighbourhood.

Built with the support of all levels of government, the City of Ottawa and private donations, the fully visitable building provides homes and hope for people who are living with severe and persistent mental illness, and who might not otherwise be able to find an adequate or affordable place to live.

It is also the first multi-unit affordable housing project in North America to be designed and constructed to meet both international passive house and LEED® (Leadership in Energy and Environmental Design) Platinum standards.



Images courtesy of Ottawa Salus and CSV Architects

Karen's Place: Quick facts

- **Project:** Four-storey affordable multi-unit residential building (MURB) for people living with mental illness
- **Location:** Heron Park, Ottawa, Ontario
- **Development cost:** $7.5 million
- **Size:** 2,486 m^2 (26,759 sq. ft.)
- **Number of units:** 42 single-occupancy bachelor apartments (approx. 40 m^2 [430 sq. ft.] each), including 6 wheelchair-accessible units
- **Target occupants:** Individuals with severe and persistent mental illness (including people who were previously homeless or at risk of homelessness)
- **Development partners:** Ottawa Salus; CSV Architects; Taplen Commercial Construction Inc.; Smith + Andersen Building Services; Cleland Jardine Engineering Ltd.; Capital Engineering Group; Lashley + Associates Landscape Architects; Integral DX Engineering; Cahdco; Housing Services Corporation
- **Construction timeline:** April 2015 to October 2016
- LEED® Canada Platinum certification obtained on May 5, 2017

Source: Ottawa Salus

"There is a need for leadership on the sustainable design front to come from the organizations and people who work and live at the intersection of healthy living, economic and social justice, and environmental stewardship. Karen's Place uses a fraction of the energy compared to the performance required by most building codes, while minimizing our operating costs and providing our residents with the best living environment possible. It also creates a powerful message; that some of the poorest people in the community can champion a sustainable approach that's good for all Canadians."

- Lisa Ker, Executive Director, Ottawa Salus

Passive House: Better Buildings. Affordable Performance.

Pioneered in Saskatchewan in the early 1970s and refined by the Passive House Institute in Germany, passive house is a "better building" approach to design and construction that uses passive techniques, technologies and strategies to improve energy efficiency, reduce operating expenses and create a healthier and more comfortable living environment. Instead of relying on complex energy or mechanical systems, passive house focuses on simple and inexpensive ways to improve performance, like adding more or better insulation and high-efficiency windows, reducing or eliminating thermal bridges, creating an airtight building envelope and using energy or heat recovery ventilators (ERVs/HRVs).

Key Passive House Features

Ottawa Salus is a registered Canadian charity that provides mental health services and supportive housing for adults living with mental illness. One of the main reasons Salus chose to build Karen's Place to passive house standards was to keep ongoing energy and operating costs as low as possible, in order to free up more funds to offer clients a broader range of support services. This includes implementing key passive house features like:

- a super-insulated exterior enclosure—consisting of insulated wall panels with I-joists, expanded polystyrene insulation and oriented strand board sheathing secured to the exterior of the building frame, to provide a total RSI-value of 8.5 (R-48) and create a living space that's up to 90% more energy-efficient than traditional buildings;
- thermal bridge-free design—including almost no contact between any heat-conducting elements and the exterior envelope, and insulation along the entire length and perimeter of those structures and services that do penetrate the building envelope;
- high-performance triple-glazed windows—with two low-E coatings, argon-filled air spaces, a low solar heat gain coefficient and warm-edge spacers set into insulated frames, for an average U-value of 0.65 $W/m^2 \cdot K$;
- a continuous airtight layer around the entire building—including insulating all windows, doors, ducts, wiring and the complete structure from roof to foundation with a system of membranes, special tapes and gaskets, to meet an airtightness standard of no more than 0.34 air changes per hour at a pressure differential of 50 Pa (or around three times the airtightness performance standard set by R-2000);
- a high-efficiency, 454-litre (120-U.S. gallon) gas boiler—to provide energy-efficient and cost-effective space and domestic water heating; and

- **a simplified yet visually attractive exterior**—to improve airtightness, reduce thermal bridging and provide a high standard of indoor air quality, while also creating healthy, secure and comfortable living spaces with an abundance of natural light.

The entire 42-unit building is expected to achieve a modelled space heating energy demand of only **15 kilowatt-hours per square metre per year**—or about the same amount of energy that's currently used by most average Canadian single-family homes. Each unit in the project will also **cost less than $30 a year to heat and cool**, resulting in significant savings for both the residents and Ottawa Salus.

Further Information

Ottawa Salus: www.salusottawa.org

Passive House Canada: www.passivehousecanada.com

Passive Buildings Canada: www.passivebuildings.ca

Canadian Passive House Institute: www.passivehouse.ca

Housing Research Report – Passive Approaches to Low-energy Affordable Housing Projects – Literature Review and Annotated Bibliography: ftp://ftp.cmhc-schl.gc.ca/chic-ccdh/Research_Reports-Rapports_de_recherche/2017/RR_Passive_Approaches_to_Low_energy_Affordable_Housing_Projects.pdf

CMHC Researcher and Analyst: Thomas Green, Senior Researcher, Sandra Baynes, Senior Analyst

Writer: David A.V. Elver Communications Inc.

cmhc.ca

69140

23-01-18