

Reviving aging housing stock for modern living



ERA Architects

Project Overview

The Ken Soble Tower project sought to rehabilitate a post-war apartment in Hamilton, Ontario. The building was completely upgraded, inside and out, to achieve Passive House standard, reducing greenhouse gas emissions by an impressive 94%. The success of the Ken Soble Tower retrofit demonstrates a pathway to revitalizing similar aging building stock across North America through ultra-low energy retrofits. Additionally, it serves as an example of the positive impact such projects could have on the built environment and local communities, while improving occupant quality of life, reducing operating expenses, and contributing to overall carbon reduction in urban areas.

At a glance:



Stone wool was used in building one of the largest sustainable and affordable housing developments in the world.



Fire resilience



Robustness



Thermal properties

The Goal

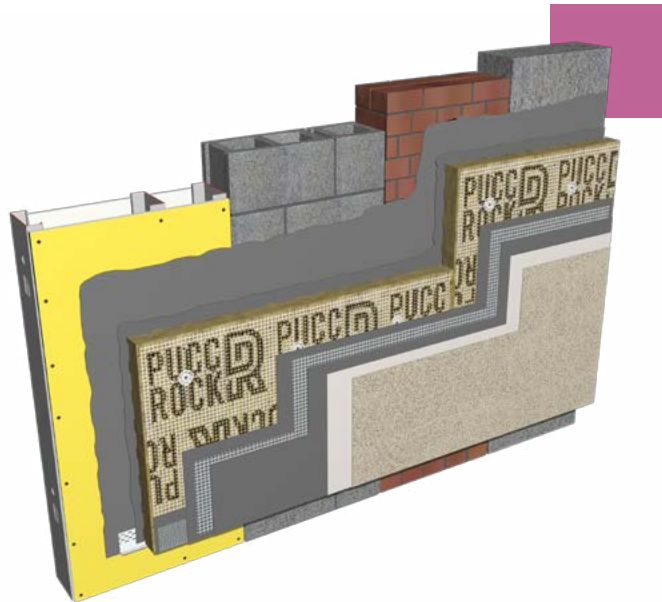
Built in 1967 at 18 stories and 80,000 square feet, the Ken Soble Tower had been in a state of deterioration for some time as the oldest high-rise multi-residential building in CityHousing Hamilton's portfolio. The goal was to retrofit the building to achieve EnerPHit certification, a branch of the Passive House (PassivHaus) standard designed specifically for retrofits. The building overhaul would include nearly every facet of the building from the building envelope, mechanical systems, electrical, plumbing, and safety systems to interior upgrades to its 146 units to support aging in place, accessibility, comfort, and overall improvement of the occupant experience. As public housing, cost was a key consideration, and the team set out to complete the retrofit at a fraction of the cost of a new build.

The Challenge

The current building had significant challenges including a deteriorating envelope, lack of insulation, inadequate ventilation, and lack of thermal controls. While ERA Architects was originally going to re-clad the building with an entire wall assembly outside the existing brick, a visit to the ROCKWOOL booth at the Construct Canada exhibition changed everything..

The Solution

After introducing the architect to the DuROCK PUCCS NC EIFS system incorporating ROCKWOOL stone wool, the entire plan for the building envelope was revised. The resulting cladding design includes a six-inch thick stone wool EIFS system. ERA Architects liked three main things about the system: first, and most obviously, the non-combustibility (important given the vulnerability of the senior-aged occupants); second, the excellent moisture control offered by the stone wool and the unique, built-in drainage layer cut into the back side of the insulation; and third, the liquid applied water resistive barrier (LAWRB). In all, 50,000 sq. ft. of ROCKWOOL stone wool product was incorporated into the new façade, helping to realize the R-38 effective R-value required to achieve EnerPHIT certification. The EIFS system, including



ROCKWOOL stone wool, fit the need for cost-effectiveness (the system helped reduce labour costs), ease of install, high-quality composition, a favourable sustainability profile as well the top-notch technical support, provided by ROCKWOOL and DuROCK. The upgraded building envelope with inorganic stone wool will also help contribute to better air quality, since mold was previously an issue. Additionally, it created a more resilient building, able to stand up to harsher conditions as a result of climate change in the region, effectively future-proofing the building and better protecting its senior residents. In fact, thanks in part to its tight and super-insulated building envelope, ERA Architects notes that Ken Soble Tower "demonstrates passive resilience to extreme conditions: In case of failure of active systems, the building will stay warm in winter for up to two days (compared to 2 hours in a typical building) and below dangerous heat levels in summer for up to four days (compared to half a day in a typical building)".

Overall, Ken Soble Tower will now provide residents with improved comfort and control of their indoor environments while substantially reducing energy demand. At its peak, the total energy needed to heat or cool each unit will be equal to the energy needed to run 3 incandescent light bulbs (100W). The retrofit now positions Ken Soble Tower as a true asset as well as a proud and prominent landmark in Hamilton's waterfront—fitting, as it now stands as one of the world's largest EnerPHit certified projects.



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