

PROJECT PROFILE

145 Woodward Avenue

In 2022, the City of Toronto put out a challenge to building owners across the city. 145 Woodward took up the call.

The Project

The climate is changing. In Toronto, buildings are the largest source of greenhouse gas emissions today. To support the City's Net Zero Strategy, the Deep Retrofit Challenge (DRC) was created to support and showcase replicable, cost-effective deep energy retrofits.

One of the buildings that took part in the challenge was 145 Woodward Avenue, a 1950s-era, 11-unit walk-up apartment building. The building manager, Forward Living Group, felt the time was right to upgrade some of the aging systems, both to improve tenant comfort and to significantly decrease energy use and greenhouse gas emissions. The DRC came along at the perfect time to support this goal.

We spoke with Julian Piro, President of Forward Living Group, about his experience planning and executing the deep retrofit at 145 Woodward, and how this has helped create a framework that can be applied when considering retrofits at other buildings that they manage.

"We're excited," Julian told us. "We've created a framework for a decentralized system, so it is scalable. I believe if we had a building five times the size, this is our solution. If we had a building 10 times the size, this is our solution."

Project Goals:



Reduce energy use intensity (EUI)



Reduce air pollution (GHG emissions)



Create a first case project and expand across portfolio



Improve tenant comfort and control



Reduce utility costs



Future-proof building



Increase property value

Building owner:
Woodward Investments

Energy consultant:
EVNA Engineering

Building type:
Multi-unit residential

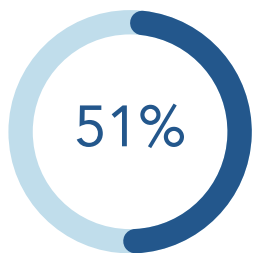
Number of storeys:
3

Number of units:
11

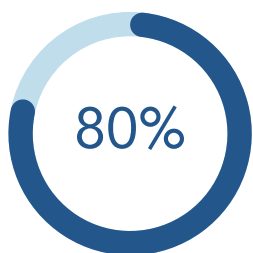
Gross floor area (m²):
870

Year built:
1955

Energy Use Reduction*



GHG Emissions Reduction*



* Projected values

The Process

Pre-retrofit energy modeling showed that 97% of GHG emissions at 145 Woodward were a result of the natural gas-fired heating and domestic hot water systems. After connecting with subject matter experts through the City's integrated design workshop, and their own consultants at EVNA Engineering, Forward Living decided to install **cold-climate electric heat pumps** in each suite, effectively replacing the central gas boiler and hot water distribution system.

In addition to lowering GHG emissions and energy costs, these heat pumps will allow tenants to directly control the temperature in their individual units for the first time. The heat pumps also offer air-conditioning in the warmer months, providing tenants with a safer and more efficient way to cool their space than having to buy and install their own window A/C unit.



Forward Living's initial goal for the project was full electrification. However, due to limitations with the electrical service currently available in the area, and cost constraints, a compromise had to be made. They decided that domestic hot water for the building will continue to be heated with gas, but the old boiler will be replaced with a high-efficiency model. Combined with the new electric heat pumps, it's still enough to make a big difference, Julian says, calling it a happy medium.

Forward Living Group is also looking forward to the co-benefits beyond the environmental impact. "Operating expenses are being drastically reduced, as natural gas is a rising cost," Julian told us. "And the immediate value impact of future-proofed technology." For tenants as well, the feedback has been positive. "The ability to control their own heat is something they really value. And offering air conditioning has been a great added incentive and a revenue enhancement for the building."

Measures Implemented:

- Decentralized air-source heat pumps for space conditioning in each suite
- High-efficiency natural gas boiler for domestic hot water
- Electric baseboard heaters for common area heating
- Insulate basement walls where possible from interior
- Electrical service upgrade



Project Budget*
\$745,857



Estimated Payback*
20 years

* Projected values

Lessons Learned

One of the challenges Forward Living faced during the retrofit's planning phase was finding a heat pump model that could handle Toronto's frigid winters without requiring supplementary heating. Ultimately, Julian says the company chose a Mitsubishi heat pump that meets their needs and local regulations, and is already widely used in commercial settings, but not in many apartment retrofits — so far.

From Julian's perspective, 145 Woodward is representative of much of the housing stock across Southern Ontario — built between the 1950s and 1970s, with heating systems that have not been upgraded in decades. "We are happy to contribute and start to pioneer this framework," Julian told us.

For other building owners considering a deep energy retrofit, Julian says it's important to understand your priorities and your long-term plans for the building. Also, consider what the building is worth in its business-as-usual state versus its value after systems have been upgraded with newer, more efficient technologies.

"As a company, we have a long-term perspective on the housing market in Ontario. And we're very bullish on what we have to offer in the city," Julian says. "So we believe the deep energy retrofit, although there's a longer payback, is worth it in the long run."



"We learned a lot through this process, and we're excited for what's to come. We believe what we're implementing is a step in the right direction for climate action mandates."

Julian Piro
President, Forward Living Group



Learn more about the participating buildings' proposed emissions reductions and deep retrofit measures [here](#)



For more information on the Deep Retrofit Challenge, please contact drc@toronto.ca