

177 St. George Street

In 2022, the City of Toronto put out a challenge to building owners across the city. 177 St. George 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, costeffective deep energy retrofits.

Dream Unlimited has a number of projects on deck for retrofit across their portfolio, including DRC participant: 177 St. George Street. Built in 1963, this purpose-built rental sits by the University of Toronto campus, housing 56 units.

We spoke to Nick Gaudio, Associate Vice President of Technical Services at Dream about the desire to upgrade their buildings in a sustainable way. "One of Dream's core pillars is to be a good steward of the environment," Nick told us. "We see every asset as an opportunity to reduce carbon and the utility output of the building".

Nick works closely with a team of energy managers, project managers, engineers, and designers on smart building technologies to reduce their carbon footprint and keep their buildings running efficiently.

The project at 177 St. George was part of a larger campaign by Dream to move towards a greener future for all of their assets – with two retrofits complete, and four more underway.

Project Goals:



Reduce energy use intensity (EUI)

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Reduce air pollution (GHG emissions)



Improve tenant comfort and control



Reduce utility costs







PROJECT PROFILE

Building owner: Dream Unlimited

Energy consultant: Footprint

Building type: Multi-unit residential

Number of storeys: 8

Number of units: 56

Gross floor area (m²): 3,902

Year built: 1963

Energy Use Reduction*



GHG Emissions Reduction*



* Projected values

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The Process

Dream's Technical Services is data-driven. Working alongside their team, Nick was armed with the numbers and the research, and was ready to meet this deep retrofit project head-on.

When assessing their portfolio for the best candidates, Dream focused on a few key questions: Where was the best opportunity to reduce overall utility bills, in addition to their carbon and energy footprint? Which assets were the largest energy consumers on a per-unit basis? Which could be most easily electrified in terms of domestic hot water and HVAC? And which assets create the least amount of friction for their budget?



177 St. George was a great fit – it answered these questions, and presented the ideal time to make the proposed upgrades. "Like anything in the built environment, things have to be upgraded," Nick said. "With a deep energy upgrade, it's opportunistically using that lifecycle replacement – whether it's boilers, windows, heating and cooling systems – in such a way that they're using less electricity through higher grade technology."

With space heating and domestic hot water provided by central gas-fired boilers, energy modelling indicated that fossil gas usage associated with these systems made up about 79% of the building's total energy use and 96% of the building's total GHG emissions. To drastically reduce these numbers, Dream installed **air-source heat pumps** in each suite, with condenser units on the balconies, and central heat pump water heaters for DHW. Along with secondary measures like LED lighting and low-flow water fixtures, 177 St. George projects to reduce their total energy consumption by 53% and GHG emissions by 82%.

An added bonus? Improving the thermal comfort for their residents by providing access to high-efficiency heating and cooling, and full control over the temperature in their space.

Measures Implemented:

- Decentralized air-source heat pumps for space conditioning in each suite
- Centralized heat pumps and electric tank heaters for domestic hot water
- LED lighting retrofit in all suites and common areas
- Low-flow showerheads and faucets
- Electrical service upgrade



Project Budget* \$3,231,637



Estimated Payback* 21 years

* Projected values

Lessons Learned

A deep energy retrofit is a complex undertaking, with obstacles to overcome. "When we were in the early stages of design, it felt like every day we were uncovering new challenges," Nick told us. "Costs, constructability, and even the utility – did we have enough electrical power in the area to really upgrade and electrify to what we needed to?"

Working with Toronto Hydro to electrify 177 St. George was a bigger task than anticipated. It wasn't just this one building – for Dream, it highlighted the challenge Toronto faces in increasing electricity supply capacity across the entire grid. With all of the logistics and the coordination involved, Dream thought the project would extend well beyond their timeline.

"We were expecting a much later energization date," Nick said, "But we got a call one day saying we were going to energize next week. It was a big win for us and for our contacts at Toronto Hydro who helped us and advocated for us through the entire project."

With two retrofits successfully completed and four more on the way, Nick feels optimistic looking ahead. "The future of all of our assets is still bright."



"The City of Toronto wants to be net zero – this is our opportunity to lead the charge."

Nick Gaudio Associate Vice President of Technical Services for Dream Unlimited



Learn more about the participating buildings' proposed emissions reductions and deep retrofit measures <u>here</u>



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