

TowerWise Energy Retrofit Program



BACKGROUND | JUNE 2019

The TowerWise program is reducing the region's carbon emissions by demonstrating that energy retrofits of buildings are effective and profitable.

Buildings make up [44 per cent of carbon emissions](#) in the Greater Toronto and Hamilton Area (GTHA). To meet [2050 targets of reducing carbon emissions by 80%](#), the energy performance of multi-unit residential buildings - condos, apartments, and co-ops - must be greatly improved. The Atmospheric Fund (TAF) is leading the way in showing how that can be done¹ - and done in a way that is profitable and socially beneficial.

TowerWise, 2007 - 2017: A decade of successes

In the first decade of TowerWise, TAF set out to demonstrate the technical feasibility and environmental, economic and social benefits of energy efficiency upgrades. Upgrades, across 10 residential towers, included installing condensing boilers, gas absorption heat pumps, heat recovery ventilation, low-flow water appliances, LED lighting, and smart thermostats. TAF financed the upgrades and was repaid through the utility cost savings under [Energy Savings Performance Agreements \(ESPAs\)TM](#).

Key Results:

- Energy use in buildings decreased 20-30 per cent
- 27,600 tonnes of carbon reduced
- \$721,000 saved on utility bills, annually
- 83 million litres of water saved annually
- Improved resident comfort
- 100% increase in fresh air supplied to buildings
- TAF made a return on investment from every ESPATM, proving the business case for retrofits

TowerWise benefits went beyond the results in the 10 buildings. The results, and complementary technical and policy research, helped to inform the creation of national boiler efficiency standards², the National Housing Strategy, the National Roadmap for Space and Water Heating and the provincial Energy & Water Reporting and Benchmarking regulation.

¹ TAF is a regional climate agency that invests in low-carbon solutions in the Greater Toronto and Hamilton Area and helps scale them up for broad implementation.

² Pre-published in the Canada Gazette, Part I, Volume 152, Number 42 as part of Amendment 15 to Canada's Energy Efficiency Regulations.

TowerWise 2018-2021: Achieving a 40% savings

In this current phase of TowerWise, TAF will demonstrate how deep energy retrofits can cut a building's energy use by 40 per cent³. TAF will undertake deep energy retrofits to four multi-unit residential buildings in the GTHA, examining technical feasibility, financial viability and social benefits.

Goals

- Cut energy use and carbon emissions by 40%
- Reduce water use
- Improve air quality and thermal comfort for residents
- Create green jobs for people experiencing economic disadvantage
- Accelerate deep retrofits across the GTHA

The four new demonstration sites represent a variety of building forms: stacked townhouses, low-rise multi-family, and high rise multi-family buildings - including low-income housing. By undertaking retrofits across varied sites, TAF is developing a wide range of best practice strategies for Canada's multi-unit residential building sector.

Key technologies

- Ground and air-source heat pumps
- Photovoltaic panels
- LED lighting
- Air sealing/weatherization measures

Accomplishments to date

- Design work underway at four sites
- Pilot measures (air source heat pumps) installed at two sites

Investment

Over \$17 million. TAF's own financial contribution is being supplemented by:

- Canada Mortgage and Housing Corporation
- Federation of Canadian Municipalities
- Independent Electricity Systems Operator
- Natural Resources Canada

Project Partners

- City Housing Hamilton
- City of Toronto
- Toronto Community Housing

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³ A 40 per cent reduction is in line with the City of Toronto's *TransformTO* climate action plan.