

Dream

Air Miles Tower LEED Energy Retrofit

Address ([Map](#)): 438 University Avenue, Toronto, Ontario M5G 2K8 Canada
 Sector: Commercial Delivery Type: Energy Management Services
 MCW Office: Toronto Status: Complete



Project Period:
2010 - 2013

Cost:
\$2,600,000

Scope:
420,000 ft²

Annual Energy Cost Savings:
\$214,500

Annual GHG Emissions Reductions:
254 Tonnes eCO₂

Certification:
LEED EB:O&M Gold

Project Description

Air Miles Tower is a Class-A commercial office tower located at 438 University Ave. in downtown Toronto. It was built in 1991 and was, at the time, designed with energy efficiency in mind: it boasted a state-of-the-art Building Automation System and numerous design solutions to save energy and streamline building operation. But by the 20 year mark, aging equipment and simplified operating practices led to slipping energy efficiency, leading Dream to seek out the best strategy to re-establish the building's reputation as an energy role model. Encouraged by LoyaltyOne - the building's anchor tenant - Dream set its sights on LEED EB:O&M certification. In 2010, MCW was engaged to deliver an energy retrofit project by providing turn-key energy engineering and project management services. This also included LEED Consulting to help meet Dream's certification objective. Dream was able to rely on our project team to manage all facets of the three year-long project from initial opportunities assessment through to design, construction and post-construction. The challenge faced by MCW was to manage the 12 month construction period with minimal interruption to day-to-day facility operation and occupancy, which was achieved through careful construction coordination and scheduling.

Technical Highlights:

- The 20+ year old building automation system (BAS) was upgraded with a new BACnet communication bus that allows for full control of any BACnet compatible devices. Featured BAS upgrades included:
 - A new communication trunk capable of handling significantly more information at higher speeds.
 - New temperature, static pressure, and air quality sensors which are used in entirely new sequences of operation to control all HVAC systems with better accuracy and energy efficiency.
 - A new, web-accessible graphic interface that allows the building operators to view and adjust all HVAC equipment in real-time.
 - Email alarming capability to notify when system parameters are outside of normal operating limits.
 - Virtually unlimited trending capabilities.
- New condensing boilers that operate between 90% and 98% thermal efficiency while producing heating water at lower temperatures.

- New variable speed chillers that use more environmentally-friendly R134A chilled water refrigerant.
- A complete lighting retrofit that resulted in a 4kW demand reduction for the building through lower-wattage T8s retrofits and a complete LED upgrade for exterior and lobby spaces. A BACNet-compatible lighting controls system that enables independent control of lighting zones was also implemented. Daylight and occupancy sensors were also installed throughout the building.
- An energy and water meter data collection solution was implemented in conjunction with 27 electrical submeters, 3 natural gas submeters and 4 domestic water submeters. The improved metering solution provides a detailed view of how each system uses energy and water with real-time data collected every 5 minutes, enabling granular trending, viewing and analysis.

Results:

By the end of 2013, one year of post-retrofit performance data had been compiled and analyzed by MCW, showing a reduction in electricity consumption by over 27%, a reduction in Natural Gas consumption of 13%, and a near-30% drop in water consumption. This represented a 30% reduction in the annual energy spend.

The project led Air Miles Tower to achieve a LEED EB:O&M Gold certification, with the energy retrofits and improvements implemented being a significant driver for that achievement. However, additional occupant-side efforts contribute too such as Dream's extensive waste diversion program, tenant energy awareness activities, and a purchasing policy for suite renovations that requires disclosure of recycled content, local supplier preference, and healthier building materials like FSC-certified wood and low-VOC products.