

## Ellesmere Yard



### Facility Profile

Ellesmere Yard located at 1050 Ellesmere Road, is a City of Toronto facility that serves a number of operating Divisions. The yard complex consists of four stand-alone buildings (Building A, B, C and D) and a salt-storage dome. A total floor area of 13,585 m<sup>2</sup> (146,227 ft<sup>2</sup>) provides offices, workshops, vehicle storage, store & warehouse, vehicle repairs and general maintenance.

The pre retrofit conditions were as follows: The buildings were heated by natural gas. Cooling was provided to the Office area by rooftop units. Domestic hot water was heated by natural gas with the exception of one building where it was electrically heated. Prior to the retrofits, T12 fluorescent fixtures provided lighting in the buildings with either 4'-34W lamps or 8'-96W lamps being used.

### Energy Conservation Measures Implemented

- Installation of a Building Automation System - A centralised BAS was installed to effectively set back heating temperature and set forward cooling temperature when the buildings are unoccupied. The system also controls the operation of the ventilation fans and the boiler hot water reset temperature
- Lighting Retrofit - All existing T12 fluorescent lamps were retrofitted with T8 lamps and electronic ballasts
- Fuel Conversion of Domestic Hot Water System - The existing electric domestic hot water tank was replaced with a new natural gas-fired tank
- Improvement to Building Envelope - The building was air-sealed and all exterior doors were weather-stripped.

Project Summary	
Project commenced:	October 1999
Total implementation costs:	\$128,378
Estimated cost savings per year:	\$24,038
Estimated annual energy savings:	751,334 ekWh
Simple payback period:	5.3 years
Estimated CO <sub>2</sub> emission reduction:	151 tonnes

### Benefits of Implemented Measures

- The building automation system will reduce energy waste through automatic scheduled control. The BAS system also allows the operator to monitor effectively the activities of the controlled equipment
- T8 lamps operating with electronic ballasts use 30% less energy than T12s operating with standard magnetic ballasts. Other benefits in standardising all T8 fluorescent lamps to 4-foot lengths include improved light levels, reduced maintenance and convenience in the stocking of replacement lamps
- As a result of the fuel conversion of the domestic hot water system, savings will be achieved due to the lower costs of natural gas usage as compared to electrical usage
- Reducing air leakage is critical to reducing the energy costs required to heat and cool the building and improving the indoor thermal comfort for occupant.