



MAPLE LEAF SQUARE (MLS)

LEED Silver



Maple Leaf Square is a 1.7 Million ft² mixed-use high rise complex located in the downtown Toronto core. The \$500 million MLS complex includes sports and entertainment space, two condominium towers, office and retail space, parking and Hotel Le Germain. The HIDI Group worked very closely with KPMB, Page + Steele, and Lemay Michaud Architects (hotel) to provide mechanical, electrical and communications consulting services for the LEED Silver complex.

To achieve its LEED Silver target, The HIDI Group’s mechanical design incorporated a number of features designed to maximize the energy efficiency of the MLS complex. These features included heat/energy recovery wheels for all central air handling systems, pre-cool/reheat runaround systems for all residential makeup air units, in suite heat recovery ventilators for all residential suites, and domestic water preheat using waste steam condensate heat. Rain water and steam condensate collected in a storm water cistern was used as gray water for irrigation and other non-potable water savings under the LEED system.

HIDI’s communications design included a comprehensive fibre optic and copper cabling service as well as a satellite dish farm on the roof to support both residential and retail tenants.

8 DISCIPLINES
MECHANICAL
ELECTRICAL
PLUMBING
LIGHTING DESIGN
COMMUNICATIONS & AV
SECURITY & RISK
COMMISSIONING
ENERGY SERVICES

Challenges

One of the challenges faced on MLS was the absence of condensate return pipe. MLS is connected to the Energy Corporation's district energy system, which supplies chilled water and steam to the majority of the properties in the downtown core. The challenge was in proposed location for the new MLS building, which was in a part of the city that lacked access to a condensate return pipe network.

The common solution for a problem like this was to cool the steam condensate with clean domestic water (drinking water) and dump the water into the city's already at capacity sanitary sewer system. This posed two major issues, one being extremely wasteful and secondly, adding to an already overburdened sanitary sewer treatment plant.

Solution

HIDI's solution was to mix three sources of water together, and by mixing storm water collected from the roof and patio in a cistern (usable storage volume of 100m³), we were able to bring down the temperature of the steam condensate which was then routed to the storm sewer system. Due to the steam condensate being chemical and mineral free, it is considered the same quality as rainwater which proved to be the best solution.

Sustainable initiatives

By using mixing water multiple sources (rainwater, dewater and steam condensate) to overcome the challenge of the lack of condensate return, the network allowed for the decrease in the load placed on the sanitary system, as well as waste of clean domestic water. A gray water system was also installed to use water collected in the mixing cistern for irrigation of planters located on the roof as well as other cleaning uses.

The reduction of domestic water usage also reduced the building operation costs. In addition to this, the footprint and placement of the smaller cistern (instead of a 3 tank system) and associated mechanical room on the below-grade parking level allowed for an increase of rentable parking space.



LOCATION: Toronto, Canada
CLIENT: Cadillac Fairview, Maple Leaf Sports and Entertainment, and Lanterra Developments
OWNER: Cadillac Fairview and Lanterra Developments
ARCHITECT: KPMB Architects, Page + Steele Architects, Lemay Michaud Architects (Hotel)
SIZE: 1.7 Million ft² / 160,000 m²
CONSTRUCTION VALUE: \$500 Million CAD
LEED: Silver
AWARDS: Greater Toronto Home Builders Association Community of the Year Award (2006)
MARKET SECTOR: Commercial, Hospitality, Residential, Retail, Sports & Entertainment
