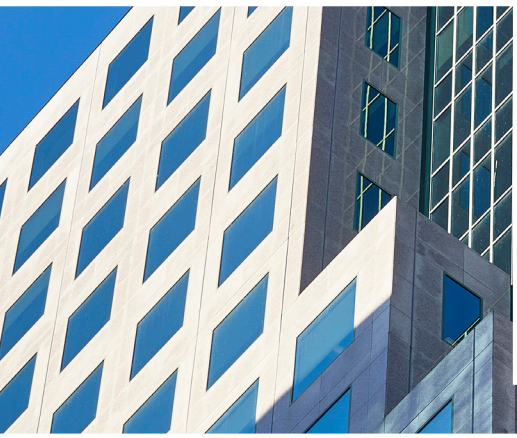
ARMSTRONG

CASE STUDY | Commercial Towers, Toronto



A pair of commercial towers (18 floors and 24 floors) in downtown Toronto recently completed an HVAC upgrade. The owners agreed to a proposal to replace 3 constant speed 40hp pumps with new Design Envelope pumps plus Armstrong's Cloud Analytics platform.

The energy savings generated by the pump retrofit are over $52,000 per year. More importantly, the Cloud Analytics platform provided two key warnings related to system operation that help avoid expensive repairs and energy losses.

FACILITY TYPE
Commercial office tower

LOCATION
Toronto Ontario

SIZE
18 floors
20,000 ft² per floor

SITE CHALLENGES

- The original suction and discharge valves could not provide tight shut off. A work-around to solve the problem added extra time to the project.

ANNUAL ENERGY SAVINGS
77%

ANNUAL ENERGY COST

BEFORE	AFTER
$68,185 CAD	$15,918 CAD
AVERAGE	AVERAGE

ANNUAL COST SAVINGS
$52,267 CAD

CO_2 EMISSIONS

BEFORE	AFTER
63,642 kg CO_2	14,858 kg CO_2
AVERAGE	AVERAGE

ANNUAL CO_2 EMISSION REDUCTION
48,784 kg CO_2



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KEY OUTCOMES:

✓ ENERGY EFFICIENCY

The energy efficiency offered by the pumps meant the project qualified for local government subsidies to help offset project costs.

✓ SYSTEM PERFORMANCE MANAGEMENT

The Cloud Analytics platform's performance tracking system notified operators of unusual flow activity. The issue turned out to be a bypass valve left in the wrong position. The problem was rectified quickly, minimizing wasted energy.

✓ ASSET MANAGEMENT

The Cloud Analytics platform also provided a warning of excessive vibration, leading service technicians to diagnose and replace a faulty motor bearing before it failed.

Equipment included	3 × 25hp Design Envelope pumps with PSPC and Armstrong's Cloud Analytics platform
Site Speciifations	Chilled water distribution system to serve 18 floors, approx. 20,000 ft^2 per floor • Specified: 1300 USgpm at 96 feet • Actual: 800 USgpm @ 80 feet







SOLUTION EMPLOYED

DESIGN ENVELOPE

VERTICAL IN-LINE PUMP

Armstrong maps each individual pump's hydraulic, motor and inverter variations at the factory to achieve exceptional accuracy throughout the flow range. With this calibration, Armstrong Design Envelope pumps also serve as flow meters, providing reliable system flow data (+/- 5%). The testing ensures optimal performance efficiency at start-up, while Armstrong's Cloud Analytics platform helps maintain and extend efficiency throughout the pump's operating life.

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