

LIVING UP TO LEED

A HIGH-RISE RESIDENTIAL
FACILITY CASE STUDY

Tridel up-graded their HVAC system to reduce energy costs through proper implementation of parallel pumping technology with best-efficiency staging.

Early results show that the parallel sensorless pump controller reduces energy usage by 85% compared to the existing constant speed pumps.

Ventus at Metrogate

Armstrong Parallel Sensorless technology enables best efficiency staging of two Design Envelope pumps in a parallel configuration, achieving energy efficiency levels previously unheard-of.

Background

Ventus at Metrogate is a condominium complex located in the greater Toronto area, developed by Tridel Corporation. Upholding the company's commitment to environmental leadership, Ventus suites boast a number of energy efficient, sustainable features including low voc paints and carpeting, Energy Star® appliances, energy recovery ventilation and high efficiency HVAC systems.

Armstrong originally supplied the pumps that support the HVAC system: two base mounted Series 4030 pumps, configured in parallel mode. Sized to provide 368 GPM at 100 feet of pressure (84 m³/hr at 30 m), each pump was attached to a variable speed drive purchased separately.

In January 2013, Armstrong representatives visited the site and found that the drives were not properly configured to take advantage of the full capabilities of demand-based control technology.

Benefits

Armstrong presented the benefits of Design Envelope Parallel Sensorless technology. Executives at Tridel were impressed with the technology, and agreed to proceed with a retrofit. Based on operating data, Armstrong recommended installation of a Design Envelope series 4302 dualArm, model 0406-015 with integrated controller and Parallel Sensorless technology.

Armstrong's Design Envelope technology with Parallel Sensorless capability allows up to four pumps in a parallel configuration to coordinate operating speed according to a centralized control curve. The Parallel Sensorless feature adjusts operating speed and stages pumps on and off as

needed to instantly match the exact flow requirements of the HVAC system minute by minute.

The retrofit project involved removing one of the existing base-mounted 4030 pumps, and replacing it with the series 4302 dualArm pump.

Operating data, post retrofit, shows that the 4302 dualArm with a Parallel Sensorless Pump Controller is 85% more energy-efficient than the previously installed base mounted pumps.

After the installation, Tridel revealed that the project had been planned as part of a benchmarking study, comparing two competing technologies. In an identical building located across the street they had installed an industry-standard BMS system supplied by a leading HVAC manufacturer. Analysis of operating data showed that Armstrong installation including the Parallel Sensorless Pump Controller was 32% more efficient than the competing solution.

Managers at Tridel are extremely pleased with the energy savings, and the corresponding reduction in carbon footprint.

Tech-facts

- Existing Installation: two base mounted units 4"x3" 20hp (100 x 80, 15 kW)
- Replacing only one with Design Envelope dualARM 4"x4" (100 x 100) 15hp (11 kW) units with integrated controls
- 85% energy savings
- Equipment payback expected in 2.5 years

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