

Energy Efficiency in New Construction

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Tridel's *Verve* condominium, a LEED® candidate, is designed to use 30% less energy than a standard condominium

To attract environmentally conscious and energy price-savvy customers, developers of new condominiums are incorporating various energy efficient and sustainable features in new buildings.

Several projects in this new generation of condominiums, such as Tridel's recently-occupied *Verve* project in downtown Toronto, are targeting LEED® Canada certification. Although LEED®-certified buildings incorporate a broad range of environmentally friendly features – from minimizing construction waste to providing bicycle racks – energy and water efficiency is a key component of these new developments. In fact, LEED® buildings must be designed to use at least 25% less energy than a standard condominium. Living in an energy-efficient building has benefits for the purchaser – both in-suite utility bills and common element fees are reduced.

In order to achieve the required energy savings, a number of innovative technologies are incorporated in these buildings:

Heating and Air Conditioning Systems
Building heating and cooling is typically the largest energy end-use in a residential building.

High-efficiency boilers are utilized in lieu of standard atmospheric boilers. These boilers come equipped with sophisticated burner controls that match natural gas consumption precisely to the amount of heating required.

Chillers, which utilize environmentally friendly refrigerant, include variable-speed compressors and intelligent control systems which maximize cooling efficiency.

Pumps and fans are fitted with variable speed drives, which allow the motors to operate much more efficiently during part-load conditions. This allows building operators to realize significant energy savings during periods when less heating, cooling, or airflow is required.

Ventilation Heat Recovery Systems
Make-up air systems are large central fans which supply all of the fresh air to a building. Since the heating and cooling of this fresh air is a very large portion of building energy consumption, nearly all LEED® buildings utilize heat recovery systems. In the case of Tridel's *Verve* project, air from suite exhaust fans is ducted back to a central location where the heat can be recovered. Since this heat would normally be exhausted directly outside, heat recovery systems significantly reduce building energy consumption.

High-Performance Windows
High-performance windows are installed, which come equipped with low-e coatings, argon gas, and warm-edge spacers, to keep suites warmer in the winter and cooler in the summer.

Lighting
Fluorescent T8 and compact fluorescent fixtures are becoming standard in new buildings, replacing older technology T12 and incandescent lamps.

LED lighting is emerging in certain applications, such as exit signs and accent lighting.

Motion detectors are useful in common areas such as garbage chutes, garages, and recreation rooms.

Energy Management Systems
Energy management systems allow for optimization of the building mechanical systems and can contribute to significant energy savings. Although often installed as a retrofit in existing buildings, new generation buildings will include sophisticated energy management system as part of the base building.

Amenity Areas
At the *Verve* project, a number of innovative technologies were incorporated in the amenity areas. The building uses waste heat to heat the outdoor pool, instead of heating with a dedicated boiler.

In the recreation centre, which may require cooling even in cold weather, the system allows for "free cooling" using outdoor air instead of electric air conditioning systems.

For more information, please visit our website at www.pemi.com or email your questions to info@pemi.com

Upcoming Events

Provident is excited to participate in the **2008 ACMO/CCI Conference** on Friday October 31 and Saturday November 1 - at the Hilton Suites Toronto/ Markham Conference Centre & Spa
Friday, 7:00 a.m. to 6:00 p.m.
Saturday, 8:00 a.m. to 1:15 p.m.

Provident is proud to be a **Bronze Sponsor** at this year's Event!

Come and join us at booth #30. This show is geared toward the condominium professional, managers and directors.

Please note that the conference is at a new location this year - the Hilton Suites in Markham.

For more information on this conference please visit the show website at www.conference.ca

Provident Grows Again!

Provident would like to introduce Jennifer Young, our new sales & marketing coordinator. Please join us in welcoming her to the Provident staff.

PROVIDENT energy management

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This newsletter is also available on our website: www.pemi.com

Free Energy Assessments

Existing buildings can benefit from current technology to save energy. Provident offers a **FREE** energy assessment to get you started on the road to energy savings. Instead of a costly and time-consuming engineering study, our technical sales team will come and analyze your building. They will provide you with initial recommendations on various energy saving measures and a cost effective way to implement these measures. At your request, we can either analyze a specific area (the pool, the garage, etc), or provide you with an in-depth proposal for the entire building.

Some of the products and services we offer are: CO Monitoring and Control Systems, Energy Management Systems and Monitoring, Lighting, Water, Metering, Variable Frequency Drives, and Central Plant Retrofits.

Once the proposal has been submitted and approved, our team will move ahead with the requested installations. Together with Provident, we can make your building's energy saving objectives a reality! Please call Provident at 416-736-0630 to schedule a free energy assessment at your building.

Fall For Us...

Previous issues of the Provident Post have discussed the need to inspect the usual suspects prior to changeover. This has included all forms of pipe tracing, ramp heating, and stairwell melting. In this issue, we would like to point out some of the items that are less well known.

- For buildings that have separate primary boilers, remember that it is possible to change over the corridor fans at an earlier date than the full building change over. This allows a source of heat in the corridors while still providing air conditioning in the suites. This half and half approach can help in the swing seasons when weather is unpredictable.
- Face and by-pass dampers should be tuned. These dampers are located upstream of the coils in main air handlers and allow some air to by-pass the coil, allowing some humidity to enter the building while still maximizing heating capacity. Ask your maintenance contractor to check the face and by-pass dampers for proper operation. The correct damper positions are usually noted on the mechanical blueprints, and vary from 60% to 90 % of air going through the coil(s).
- Along with face and by-pass dampers, inlet dampers have equipped most fans since the 1990's (as required by ASHRAE 90.1) and even earlier for packaged systems. These dampers are closed whenever a fan is off. They prevent "stack effect" losses when fans are off, and can be an important energy saving feature when operating properly.
- Basement loop systems are often over-looked on the initial change over. Many times these systems are located in odd locations such as in some access hatch in a garage ceiling or a random locker room. These systems should be put on line with particular attention paid to isolation valves that may be located in other locations.
- Energy savings can be achieved by checking thermostats controlling exhaust fans and/or packaged A/C Units located in electrical and mechanical rooms. These units can often be turned off altogether in the winter to achieve additional savings. This must be determined on a case by case basis.

Most importantly, please contact Provident when you are changing over. In almost all cases, Provident needs to make programming changes so that equipment will operate properly in a heating mode.