

Green Condominiums: LEED® for Multi-Unit Residential Buildings

By Craig McIntyre, PEng

WITH growing concern over climate change, greater attention is being paid to the impact of buildings on the environment. The green building trend has spread to the multi-unit residential market – in the new construction condominium industry, marketing brochures and media releases are increasingly referencing a standard known as LEED® as part of the environmental goals of the development.

LEED is the most recognized green building rating system in North America, and has experienced enormous growth in the last three years.

Although initially designed as a rating system for commercial buildings, the LEED system has been adapted for multi-unit residential buildings. As of April 2007, there are 37 mid and highrise residential buildings in Ontario alone registered under LEED Canada, and the number is rapidly growing. Including the commercial and institutional building sectors, there are over 450 LEED registered buildings in Canada and thousands in the United States.

■ What is LEED?

LEED, an acronym for “Leader-

ship in Energy and Environmental Design,” is a consensus-based standard for evaluating the environmental sustainability of new buildings. To earn LEED certification, developers must follow a specific set of environmental requirements throughout the design and construction of the project. In contrast to the Ontario Building Code, LEED is a completely voluntary standard.

LEED is a point-based rating system, with points available in five general categories. There are a number of required points (called prerequisites) that builders must meet to obtain LEED certification. Beyond the prerequisites, there are 70 additional points that developers may pick and choose to pursue. A few sample points in each category are listed below:

1. Sustainable Sites – redevelopment of existing brownfield sites, installation of bicycle racks, proximity to bus routes, etc.
2. Water Efficiency – reduced water consumption (e.g., low-flow faucets, water-efficient landscaping, etc.)
3. Energy and Atmosphere – energy efficiency, use of renewable energy (wind, solar), etc.
4. Materials and Resources – use of recycled and regional materials, etc.
5. Indoor Environmental Quality – effective ventilation systems, use of low-emitting materials, etc.

Depending on how many of the 70 discretionary points are achieved, the building is awarded with one of four LEED certification levels:

- LEED® Certified: 26 to 32 points
- LEED® Silver: 33 to 38 points
- LEED® Gold: 39 to 51 points

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• LEED® Platinum: 52 to 70 points

Because the rating system is very stringent, most condominium developers are targeting LEED Certified or LEED Silver rating levels. LEED Gold represents a very high level of environmental sustainability, and LEED Platinum is reserved for the most extreme green buildings.

An early version of LEED was developed in 1998 by the United States Green Building Council and it was initially intended as a green building standard for commercial office buildings. A Canadian version was developed by the non-profit Canada Green Building Council (CaGBC) in 2004, and is largely based on the U.S. version, but with certain modifications to account for Canadian building codes, standards and construction practices. In 2005, the CaGBC released a version of LEED specific to multi-unit residential buildings. The specific guide for multi-unit residential buildings was necessary because of significant differences in design and construction practices between commercial and residential buildings.

■ **Benefits of LEED**

For unit owners and tenants, there are numerous benefits of buying or living in a LEED certified building.

One of the key requirements of LEED is that a building be designed to use at least 25 per cent less energy than a typical energy code-compliant building. This target is typically achieved by installing high-efficiency chillers and boilers, well-insulated walls and windows, and providing energy efficient lighting and appliances. For a unit owner, this means that the total building energy consumption is lower than a typical non-LEED building, which reduces both common element charges and in-suite energy charges.

LEED requires that all buildings be properly “commissioned” – that is, that a commissioning agency be hired to ensure the building is designed and constructed to the original specification, that the building’s heating and cooling systems are tested in various modes of operation, and that a comprehensive operations manual is in place for use by operations staff.



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Radiance @ MintoGardens, Toronto. LEED® Silver Certified (April 2006). Photo credit: Minto Urban Communities Inc., courtesy of Canada Green Building Council.

Another key aspect of LEED is the emphasis on a healthy indoor environment. In the past, condominium buildings in particular, have suffered from inadequate ventilation system design. The LEED requirements for

ventilation in multi-unit residential buildings represent a fundamental shift in design standards and suites will be continuously supplied with filtered fresh air. In addition, LEED buildings have specific requirements

to eliminate tobacco smoke transfer between suites. Points are also available for using high-efficiency air filtration systems, and using materials (such as paints and carpets) that do not release hazardous volatile organic compounds (VOCs) into the air over time.

Building durability is another potential benefit of LEED certified buildings. A point is available for using construction materials that are considered “durable” by industry professionals, such as the use of rugged bricks instead of short-lived stucco-faced EIFS (exterior insulation and finish system). Greater building durability means fewer repairs and replacements to building components, and this can mean lower common element fees due to lower maintenance costs and lower reserve fund contributions.

Certain points in the LEED rating system may not directly impact unit owners, but serve to benefit the environment as a whole. For example, points can be earned for using a high percentage of locally sourced build-

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ing materials. Sourcing materials locally is beneficial to the environment, because it reduces emissions that would have been released by vehicles transporting heavy construction materials over great distances.

There are similar points available for measures that a unit owner would not see day-to-day such as the use of recycled construction materials and using environmentally friendly refrigerants in air conditioning systems. However, such measures may represent an important selling feature for consumers that are increasingly concerned of the impact that buildings have on the environment.

■ Costs and Challenges

Typically, condominium developers focus on building cheap and selling units as quickly as possible. However, achieving a LEED rating requires a significantly higher standard of construction with premium, higher-cost equipment such as high-performance windows, high-efficiency boilers and ventilation air heat recovery systems.

Green products, such as low VOC-emitting carpets and energy-efficient light fixtures, often cost more than standard products.

CaGBC estimates that achieving base-level LEED status adds 1 to 3% to construction costs for mid and highrise condominiums, although some developers estimate the figure to be higher. Condominium developers are in a challenging position because the building is turned over to the condominium corporation shortly after construction completion. The developer must bear the higher construction cost but does not benefit from the reduced annual operating costs; therefore, the only direct benefit to the developer is the marketing potential. Greater construction costs inevitably increase selling prices, although some developers have adopted innovative "green financing" techniques to assist in offsetting the higher construction costs.

The LEED certification process can also be lengthy and time consuming. Although a project can be LEED "Registered" early in the proj-

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ect conception phase, which simply means that the developer has paid a fee and intends to pursue a LEED rating, final certification is not awarded until completion of construction. Even though LEED Canada has been in existence since 2004, at the present time, there is only one multi-unit residential building in Ontario that has earned final LEED certification.

■ **Implications for Property Managers**

The coming onslaught of LEED condominiums will have implications for property managers. LEED buildings may have complex systems and equipment not usually encountered in multi-unit residential construction. This equipment, such

as in-suite ventilation systems, condensing boilers, and sophisticated control systems, have specific maintenance requirements that will need to be addressed, and there may be a learning curve for operations staff associated with the maintenance and operation of this equipment.

On the other hand, as part of the commissioning process, LEED requires more thorough testing and substantive documentation of building equipment, which leads to fewer operational deficiencies and is intended to assist staff in proper equipment operation.

Furthermore, unit owners are buying into buildings that are significantly more energy and water efficient, more durable, have less

impact on the environment, and are ultimately more valuable than typical low-cost condominiums.

LEED is in its infancy in the Ontario condominium market. As demand for sustainable buildings increases, and LEED becomes the industry standard, it is believed that costs will come down, the certification process will become more streamlined, and healthy, energy efficient condominiums will become the norm in Ontario.■

Craig McIntyre, PEng, is a project engineer with Provident Energy Management Inc., a leading provider of energy services to the condominium market in the Greater Toronto Area.

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