

# LEEDING EDGE

Canada's First LEED Platinum Subdivision



Picture courtesy of Rodeo Fine Homes

It didn't take homebuyers long to show they liked the new homes in Newmarket. With more than 300 buyers expressing interest in the homes, 13 of the 34 houses in the subdivision were sold at a pre-sales event before the first house was even built.

The attraction? The chance to own the first homes in Canada in a subdivision designed to LEED™ platinum standards.

"The development sets a new standard others will have to follow," said Gord Miller, the Environmental Commissioner of Ontario. "It's a challenge to other communities to be as bold as Newmarket and for other builders to be as bold as Rodeo Fine Homes."

Compared to conventional homes, the green homes in Newmarket now being built by Rodeo Fine Homes will use 50% less fresh water, have 35% less discharge into the storm and sanitary sewers, produce 60% less greenhouse gas, and use 60% less energy.

"The results are going to be even better than we hoped for," David Potter, assistant director of Building and By-laws for the Town of Newmarket. "This will be Canada's first subdivision in Canada designed to LEED platinum standards and shows that Newmarket really is a leader in environmental responsibility and innovative partnerships."

## InSight

Green Houses in Newmarket

Location: Newmarket, Ontario

Size of Development: 34 detached homes

Houses: 2200 to 3500 square feet on 40, 45, and 60 foot wide

Timing: ground breaking Nov 2007

Cost: approximately 10% more than conventional houses with increased costs offset by energy savings

### Environmental Benefits

- 60 per cent less construction waste
- 50 per cent less water consumption
- 60 per cent less greenhouse gas emissions
- 60 per cent less energy consumption
- 35 percent less discharge to sewers

Developer: Rodeo Fine Homes [www.rodeofinehomes.com](http://www.rodeofinehomes.com)

(pictures by David Potter)

It has, Potter says, been a development that has been under consideration for a long time and while it is a private developer that is handling the construction and marketing of the development, it was the Town of Newmarket that was the driving force behind the project.

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In March 2003, the town purchased the 90-acre Stickwood-Walker farm on Mulock Drive for a new recreation complex with the idea of selling off part of the land for residential development to offset the cost. It was that decision that led to the concept of creating “Canada’s greenest community.”

The town set the standards for this project, declares Potter. “We issued an RFP that set out the environmental targets that we wanted to meet – and they were extremely stringent targets.”

In January 2006, after considerable negotiation, the Town sold the 34 lots to Rodeo Fine Homes, a local developer, for \$3.2 million with the provision that the development would significantly reduce energy and water consumption and the emission of green house gases.

The town developed its environmental objectives in conjunction with Canadian Mortgage and Housing Corporation. Part way through the design process, the planners decided to incorporate LEED (US) platinum design standard while at the same time meeting the original targets.

Leadership in Energy and Environmental Design establishes a national standard and creates the criteria by which architects and engineers can agree on what constitutes green design. LEED has eight categories of measurement standards that focus on the environmental impact of the building, energy and water consumption, material selection, air quality and innovation in design.

While LEED has no financial incentives directly attached to it, there are practical benefits to certification that go well beyond bragging rights. Lower energy costs, lower water costs, lower maintenance costs, and an improved indoor environment, all of which lead to happier owners and tenants can provide some significant paybacks for the increased construction and design costs that may be needed.

“LEED Platinum is the top of the scale,” says David Potter. “In fact, it has never been used before for low rise residential in Canada and the developer had to look at the standards established in the U.S.”

“A conventional home might warrant 15 points on the scale. LEED certification begins at 45 points. Platinum certification requires 90 points.”

The new homes will incorporate numerous improvements, notes Potter. Some, like compact fluorescent light bulbs and Energy Star appliances can be used to improve environmental efficiency in any home. Others, such as the high levels of insulation and the rainwater harvesting system, need to be incorporated directly into the fabric of the building.

To reach LEED Platinum levels, Rodeo Fine Homes had to look at every aspect of how a house interacts with the environment to find ways to conserve energy use and reduce water consumption. Extra insulation and high performance windows will reduce heat loss. Solar panels on



the roof will preheat water and air going into the house.

Since toilets and irrigation represent over 50% of a homes annual water draw, an innovative rainwater harvesting system developed by the University of Waterloo collects water from the roof, filters it and stores it in a concrete cistern for use in toilets and irrigation - a tremendous reduction in storm water runoff and potable water consumption.

Rodeo Fine Homes will be using the latest technology to monitor and control energy use but it is not ignoring design techniques that have been in use (and subsequently neglected) for hundred of years. Large overhangs will provide shade while the size and position of windows will maximize the heat gain from the sun in the winter. It is even addressing the effects of climate change with drought resistant

plants that will require less maintenance and irrigation.

“The response to the new development has been outstanding, which shows that people do want to play their part in being environmentally responsible and cutting down on their own personal carbon footprint,” he concludes.

Potter says that the town will be developing an Environmental Performance Review manual based on this development, which can be the basis for use in other projects “as builders step up to the plate.” It will also be used as a case study in developing LEED residential standards for Canada.

On November 7, 2008, Peter Love, Ontario’s Chief Energy Conservation Officer, presented the Town of Newmarket and Rodeo Fine Homes with a certificate

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in recognition of their partnership to build EcoLogic, Canada's greenest residential community.

## HOW TO BUILD A LEED PLATINUM HOME

Some of the features that are being incorporated into the Rodeo fine Homes development in Newmarket

### RENEWABLE ENERGY AND CONSERVATION MEASURES

- Increased Insulation Levels R50 in the attic; R21 in the above ground wall cavities; R7 rigid insulated sheathing over the walls; R40 air tight spray foam insulation in garage ceiling; R22 on basement foundation walls; R10 under the basement floors
- Low-e2 Dual Pane Windows with Argon Gas Filling Low-e or low emissive coatings reflect heat and sunlight: winter sun heats the home, summer sun is reflected away. The inert argon gas between glazings is a better insulator than air.
- Dual-Purpose High Efficiency Boiler A single boiler for space heating, domestic hot water and radiant heating. Hot water produced on-demand with no stand-by heat loss.
- Integrated HRV and Air Handler with an ECM Motor The heat for the home comes from hot water circulated through a fan coil. The furnace's heat recovery ventilator transfers 70% of the heat from the warm exhaust air to fresh incoming cold air for better air quality.
- Solar Water Preheat Solar energy heats the water before it goes to the dual-purpose boiler. It can meet all summer hot water requirements and reduces hot water energy costs by 50%.
- Solar Air Preheat Solar panels warm fresh air going to the heating system.
- Solar Shading Three-foot overhangs to prevent the midday summer sun from overheating the homes, but allows the morning and evening sun in along with much of the sun's winter heat and light.

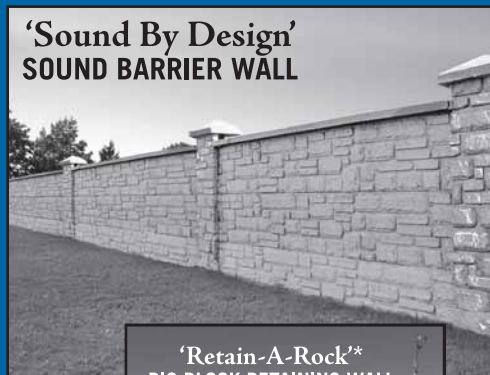
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*Top picture: house construction showing the deep overhangs Bottom picture: cistern used for rain harvesting*



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### WATER CONSERVATION

- Below Grade Rain Water Harvesting Cistern to Supply Toilets and Irrigation  
A rainwater harvesting system collects water from the roof, filters it and stores it in a concrete cistern for use in toilets and irrigation. Avoids municipal water restrictions during hot summer months. Marked "Not for Drinking", an exterior spigot connected to the rainwater-harvesting cistern supplies rainwater for planters and washing the car.
- Dual Flush Low Flow Toilets
- Hot Water Re-Circulation Pumps with Timer  
A re-circulating pump with a timer ensures that water remains hot in the plumbing supply lines.
- Interlocking Permeable Concrete Stone Driveways  
Allow rainwater and runoff to recharge the ground water.

### OTHER RESOURCE CONSERVATION

- Locally Sourced Materials from Local Companies  
Sourcing materials locally (approx. 800 km or less) reduces energy consumption and greenhouse gas emissions in transportation
- Forest Stewardship Council (FSC) Certified Wood  
FSC certified wood comes from well-managed forests that use sustainable and ethical harvesting practices.

### CONSTRUCTION PRACTICES

- On-Site Waste Diversion and Recycling Program  
60% diversion of waste that would normally go to landfill.

### INDOOR AIR AND ENVIRONMENTAL QUALITY

- Low Volatile Organic Compound Paints  
Low volatile organic compound paints reduce "off-gassing" that can irritate lungs and affect breathing.
- Steam-Based Insulation Propellants  
Steam, rather than VOC emitting propellants, used to spray foam insulation into the wall cavities.
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