# Light Steel Framing - Customize to Optimize

## REFLECTIONS ON BOGART POND

NEWMARKET, ONTARIO

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DESIGN AND CONSTRUCTION TEAM

OWNER:
Rockport Group

ARCHITECT:
David Lieberman

ENGINEER:
Atkins + Van Groll Inc.

DEVELOPER/BUILDER:
Rockport Construction Services Inc.

PRE-ENGINEERED AND PRE-ASSEMBLED LIGHT STEEL PANEL:
KML Building Solutions and GenesisTP Inc.

Bogart Pond Condominium Phase 1 nearing completion.

Just as beauty is in the eye of the beholder, so potential is in the eye of the imaginative. There are still folk out there who hear words like "pre-engineered" and "system" and think that translates to "box" - with self-imposed limits on both usefulness and appearance.

Not so, according to Raymond van Groll, Managing Partner of Atkins + Van Groll Inc., consulting engineers of Toronto. "We enjoy working with light steel framing (LSF) and panelling. It's a very effective form of construction that facilitates both design and building. In fact we've developed our own software to optimize designing with LSF."

Atkins + Van Groll teamed with the Rockport Group, developers and builders, also of Toronto, on the Reflections on Bogart Pond project, a five-storey condominium of 132 units on 15 acres of private parkland in Newmarket, Ontario. The two-phase project began in July of 2002, scheduled for completion in April 2004. Sold mainly to seniors, the units sport balconies or landscaped terraces and overlook a natural setting including Bogart Pond and natural trails. The facade of the building is rough cultured stone and wood siding.

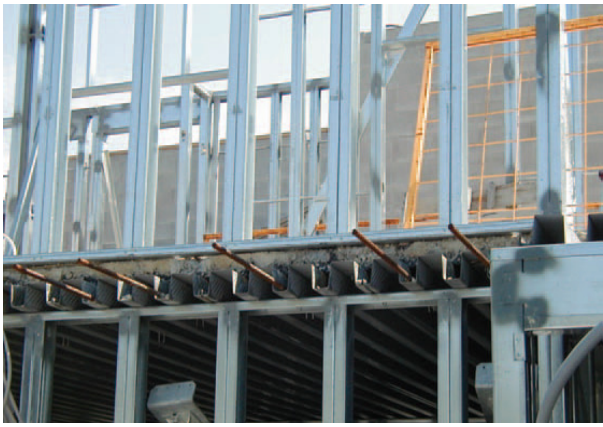
The galvanized and Galvalume™ light steel framing is pre-engineered and pre-assembled into open-frame panels by KML Building Solutions, an affiliated GenesisTP Inc. partner, of Cambridge, Ontario. Steel framing members ranged from 1.9 mm (0.075") at first floor level, to 1.22 mm (0.048") on the top floor. Due to the layout, most of the walls were loadbearing, with a few non-loadbearing of 0.46 mm (0.018") at the corridors. The roof deck comprised 0.91 mm (0.036") steel with 0.88 mm (0.035") trusses. The steel for the composite floor deck was 1.52 mm (0.060").

John Wilkinson, President of Rockport Construction Services Inc., believes the approach taken with the floor deck is a first for this type of construction. "We wanted to control impact sound from floor-to-floor. We devise a floor system modelled after the structural approach used in industrial buildings. We went without joists and tood a corrugated steel deck and poured concrete on to a depth of 165 mm (6-1/2") at the troughs and 89 mm (3-1/2") at the peaks to create a composite floor of 203 mm (8"), compared to 406 mm (16") for alternative methods. This resulted in significant savings in building height and facade costs."

That approach also meant savings on insurance premiums at non-cumbustible rates. Wilkinson adds that the LSF panel system allowed him to save 51 mm (2") at every demising wall in the 13,784 $m^2$ (148,375 $ft^2$) project. Depending on your choice of floor system, that could translate to considerable cost savings. In terms of long-term savings on maintenance and energy costs, he comments, "This was our first time using LSF, so we're too new at it to discuss whether long-term benefits to owners and end-users occur, but given the product's attributes they should."

The LSF system allowed Rockport to install the windows, close off a floor and put heat in as they went, before working on the next floor. Says John Wilkinson, "We like the simplicity of working with LSF."

Having said that, there is a learning curve, albeit a relatively short one. One project is usually all it takes. In fact Raymond van Groll sees LSF systems as the way to go for projects like Bogart Pond. "We've been working with LSF for about 10 years and it now represents 30 to 40% of our business. I believe it to be both faster and cheaper than poured concrete or hollow slab and concrete block. I think some of the resistance towards it is because the code regulating its use appears complicated. But once you've worked with it, familiarity comes quickly and it's actually quite simple."



The steel for the wall studs and panels ranged from 1.9 mm (0.075") at the first floor to 1.22 mm (0.048") on teh top floor. The steel floor deck is 1.52 mm (0.060").

Interior and exterior walls complete and ready for steel deck.

Erection of wall panels on finished slab of third floor of Phase II.

Intersection of the walls and floor system. The deck is 75 mm (3") x 1.22 mm (0.048") composite deck by Vicwest, adn the studs are 90 mm (3-5/8") x 1.52 mm (0.060") studs.

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