



## Niagara Fallsview Casino Resort Hotel

**T**he one billion dollar Niagara Fallsview Casino Resort Hotel opened to the public on June 10, 2004, becoming one of Canada's largest commercial developments.

Completion took a little over 30 months.

It is prominently located on the Murray Hill site at the top of the moraine escarpment and due to its innovative L-shaped plan, it provided dramatic views of the American and Horseshoe Falls for all its' 368 rooms.

The developer and operator of the Niagara Fallsview Casino Resort, Falls Management Company (FMC) had few criteria for the design of the hotel. There were two in particular that became a challenge. First, it was required that all of the hotel's 368 rooms and suites had to have a clear view, to the greatest extent possible, of both the American Falls and the Canadian Horseshoe Falls. FMC wanted to take advantage of the hotel's prime location.

Second, FMC wanted to minimize any visual obstruction to the falls that the hotel may present to existing or future buildings in the area. With these two challenges, the project team considered a number of options. In the end, the luxury casino hotel's innovative structural features included a L-shaped floor plan, a single loaded corridor and a vertical tensioning.



The single loaded corridor and the L-shaped floor plan would enable the Falls Management Company to achieve its objects. It reduced the visual distraction for its neighbours while providing spectacular views of the both falls in any suite or room.



**Owner:** Falls Management Company

**Architects:** A joint venture of:  
• Zeidler Partnership Architects  
• Bregman + Hamann Architects

**Engineers:** Yolles Partnership Inc.

**Construction Team Members:**

*General Contractor:* PCL Constructors Canada Inc.

*Concrete Supplier:* Lafarge Canada Inc.

*Concrete Post*

*Tensioning Subcontractor:* Harris PT

*Concrete Reinforcement:* Harris Rebar / Salit Steel Ltd.  
(joint venture)

*Concrete Formwork /*

*Placement / Finishing*

*Subcontractor:* Premrili Group Inc.

**Additional Participants:**

- Aluma Systems Canada Inc.
- Peri Formwork Systems Inc.
- Carpenters Local 18
- LIUNA Local 837
- Ironworkers Local 736

**Project Facts:**

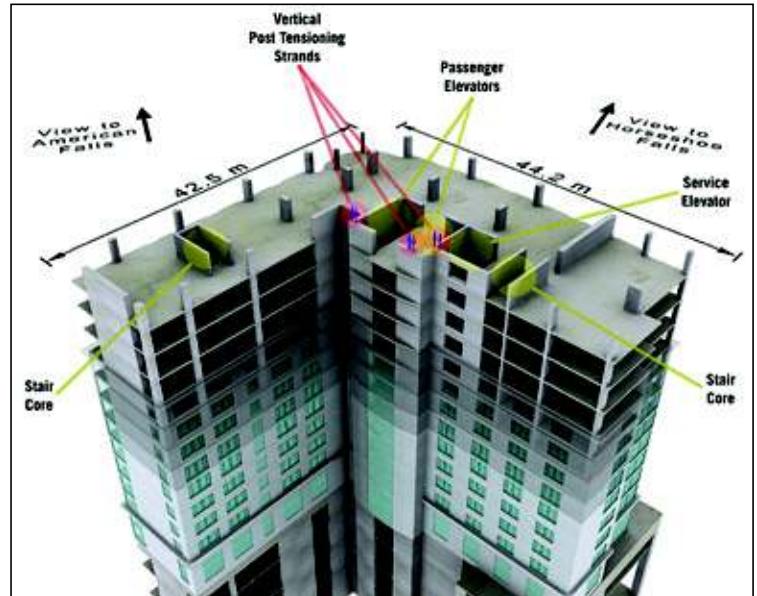
- Opened June 10, 2004
- Total area of 232,258m<sup>2</sup>
- 18,581m<sup>2</sup> gaming area
- 4,645m<sup>2</sup> exhibition, meeting and conference space
- 1,500-seat theatre
- 30 storey, 368 room luxury hotel
- 23,412m<sup>2</sup> retail and restaurant space
- 9-level, 3,000 car parking garage



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The greatest challenge for Yolles, the structural engineers, was laterally stabilizing the hotel structure. The core walls surrounding the building's elevators were relied upon to provide the majority of the structure's lateral stability since it was the owners preference to use discreet columns between the rooms rather than continuous shear walls. The selected design provides the maximum amount of flexibility for potential future uses of the space.

Due to the location of the core's walls, gravity loads forced on the core were considerably unbalanced. It was then that Yolles decided to post tension the core vertically in an effort to balance the compressive forces along its vertical axis. Post-tension strands were anchored at the base of the core walls. The number of strands diminished progressively every five floors up the core and the strands were tensioned from the upper cut-off points.



2004 Ontario Concrete Award winning project for Structural Design Innovation

*In 2000, the Ontario Cast-In-Place Concrete Development Council (OCCDC) was formed to aid the owner/ developer, architect/engineer and design-build contractor in the decision-making process of choosing the best construction material for the framing system of new cast-in-place structures.*

*OCCDC promotes the benefits of reinforced concrete as the construction material of choice based upon the following advantages:*

- fast-track construction
- costs savings
- structural advantages
- environmental considerations
- local economy benefits

*The Members of the OCCDC include (alphabetical order):*

*Aluma Systems Inc.  
Carpenters District Council of Ontario  
Concrete Forming Association of Ontario  
Ironworkers District Council of Ontario  
LIUNA—Ontario Provincial District Council  
Ontario Formwork Association  
PERI Formwork Systems Inc.  
Ready Mixed Concrete Association of Ontario  
Reinforcing Steel Institute of Ontario*

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