CASE STUDY

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Ontario Cast-In-Place Concrete Development Council

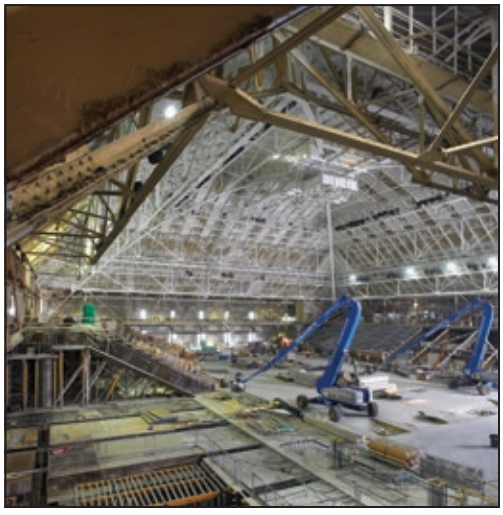
Maple Leaf Gardens Remodernization

The remodernization of Maple Leaf Gardens involved the reconstruction of the historical building that dates back to 1931. The logistical challenge of this project was not only maintaining the historical integrity of this building, but demolishing it from within and reconstructing new facilities that range from a Loblaws Great Food grocery store to a lower level parking garage. Buttcon Limited also worked with Ryerson University to build its new sports field house. This project involved the new construction of a 250,000 square foot athletic centre with an NHL-sized rink, 4,500 seats, and a basketball and volleyball court.

In recognizing the objectives of the owner to accomplish the construction of this facility, Buttcon Limited provided construction management services to complete this challenging project on time and within budget. We looked at construction methodology, availability of materials, manpower and potential influencing factors to ensure cohesion with the budget and schedule that the client can sustain. The construction of the base building and the Loblaws Great Food grocery store was started in December 2009 and completed in November 2011. The completion of the Ryerson athletic centre followed in August 2012, bringing the total value of this re-modernization to $72 million.

Having demolished the interior of Maple Leaf Gardens to reconstruct various facilities within, concrete was a major construction material selected for this project. Buttcon Limited commends its effective utilization of concrete to meet the Owner requirements and create a structurally sound building. Various factors introduce themselves within the implementation of concrete to match the anticipated design. Factors considered included:

Acoustics and Vibration: due to the fact that this building was intended for parking, retail and athletics purposes, a concrete structure was preferred over that of steel. Concrete was ideal for both sound and vibration concerns given the gymnasium and work out rooms located directly above the grocery store, and the ice rink and seating above that.



Owner:	Loblaw Properties Limited Ryerson University
Architect of Record:	Turner Fleischer Architects Inc. BBB Architects
Engineer of Record:	exp Services Inc.
General Contractor:	Buttcon Limited
Forming Contractor:	Hardrock Forming Co.
Material Supplier:	Dufferin Concrete, A division of Holcim (Canada) Inc.
Additional Participants:	• Aluma Systems Inc. • Carpenters Local 27 • Harris Rebar • Ironworkers Local 721 • LIUNA Local 506 • National Concrete Accessories
Project Facts:	• Located in Toronto, Ontario • Completed November 2011

- Dufferin Concrete was the sole supplier of concrete for this project. They provided approximately 17,000m³ of ready mix concrete to this project, utilizing 37 different mixes for all the required applications.
- Concrete had to be distributed in relatively small quantities throughout multiple levels on the north side of the building. Due to the grand scale of this project, operating under such conditions proved to be an obstacle Buttcon Limited was able to overcome.

OCCDC

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Exposed Structure: throughout the building concrete soffits were left exposed to showcase the aesthetically appealing historical elements of the pre-existing structure. As fire rating remains inherent in concrete designs, the concrete exposure was suitable to maintain the building design and safety standards.

Flat Rink Slab: the flat rink slab and the associated piping were set into 12-inch depressions in the structural slab. Both the structural slab and the rink slab were constructed to very stringent tolerances, which allowed for a leveled rink slab and created space for piping and structural necessities.

Framing Systems: the project utilized a combination of two-way slabs with tapered drops, one-way slabs on concrete beams and two-way slabs on concrete beams.

Interior Frame Supports Exterior Walls: the lateral stability of the building was originally dependent on the raked seating. After the seating was removed, the new internal concrete framing provided stability for both the new structure and the original exterior walls. Raked seating with six-inch thick risers and slabs, cast integrally with raker beams, were installed throughout the third floor rink slab.

The amalgamation between the architectural necessities, structural challenges and the use of new products and technologies, bring to life a new and excited Maple Leaf Gardens that will last for centuries.

2012 Ontario Concrete Award Winning Project
Specialty Concrete Applications

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 incude (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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