

Leslie L. Dan Pharmacy Building, University of Toronto

Located in the heart of Toronto's health sciences discovery district, the new Leslie Dan Pharmacy Building is home to the faculty, staff and students of the University of Toronto's Faculty of Pharmacy, boasting 167,000 square feet of teaching and research space. The building itself is divided into 3 separate areas as a way of providing for the Faculty's needs. There are levels below grade which are used as lecture theatres, and 12 storeys above grade—5 storeys to house the administrative and faculty offices, and an additional 7 storeys to accommodate the research and teaching laboratories of the Faculty.



The building design is a Canadian first by world renowned architect Norman Foster. Its unique design incorporates 19 metre high concrete columns, which support the perimeter of the building and the two innovative floating pods containing study, lounge, lecture and work spaces. The pods are visible from the glass enclosed, light filled atrium which connects all levels of the facility in a design to promote the sense of community between each level of the building.

The construction of these concrete column elements created a challenge for the construction team, specifically: how to build colossal architectural concrete columns 19 metres high in a single placement. Through creative process design, the construction team, lead by PCL Construction, developed an innovative solution to address the problem.

The approach was a process incorporating *Agilia* self-compacting concrete (supplied by Innocon) and a Canadian-first in terms of concrete placement technique. *Agilia* concrete was selected because it is more fluid than regular concrete while using less water, and requires no internal or external vibration for consolidation. The self-leveling concrete's fluidity lets gravity do the work. To complete construction of the columns, *Agilia* self-consolidating concrete was placed at the bottom of forms via a guillotine valve and was pumped up through the columns. This valve would be closed at the completion of placement, achieving a column with a superior, smooth and high-quality concrete finish unmarred by surface voids. This creative solution to the problem



- Owner:** University of Toronto
- Architect of Record:** Cannon Design
- Engineer of Record:** Halcrow Yolles
- General Contractor:** PCL Constructors Canada Inc.
- Material Supplier:** Innocon
- Additional Participants:**
- Aluma Systems Inc.
 - Amherst Crane Rentals Ltd.
 - Bravo Cement Contracting (Toronto) Inc.
 - Carpenters Local 27
 - Foster + Partners
 - Gilbert Steel
 - Ironworkers Local 721
 - LIUNA Local 506
 - Moffat Kinoshita Architects
 - National Concrete Accessories
 - Peri Formwork Systems Inc.
 - Premform Ltd.
 - Rebar Enterprises Inc.
- Project Facts:**
- Construction from April 2003 – September 2006
 - 16,500 gross square meters (167,000 square feet)
 - Project cost of \$75 million, funded by Ontario Government





yielded stunning architectural-quality concrete columns that soar 19 meters high.

The \$75-million project was funded by the Ontario government, the University's infrastructure investment fund and the support of private donors. Pharmacy alumnus and founder of generic pharmaceutical manufacturer Novopharm, Leslie Dan donated more than \$13 million to the project. The building has been carefully designed to sensitively respond to its immediate surroundings, with

its main mass elevated above a colonnaded circulation space that matches the cornice heights of two neighboring historically-listed university buildings and the nearby Ontario Parliament Building. The Pharmacy building will be an "educational powerhouse" inspired by creative solutions to an innovative design that provides a state-of-the-art environment to facilitating and inspire the education of future pharmaceutical professionals.



2007 Ontario Concrete Award winning project for
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 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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