



## Atrium Addition, DeGroot Centre for Learning & Discovery

**S**tudents and faculty members of the Michael G. DeGroot Centre for Learning & Discovery now have an oasis to meet and relax in their new 3,800 square foot atrium, which is now the focal point of the building. The tranquil setting includes the 5 storey high exposed polished concrete columns, as well as water features, tropical plants and a suspended conference room.

The columns not only support the facility, they are an architectural feature due to the simple yet elegant elliptical shape. “We are very pleased about the detail and the quality of the elliptical columns. We are ecstatic about the project which is unique on our campus and we are very proud of it,” said Tony Cupido, Director of Physical Plant at McMaster University. The concrete columns were not simply chosen over structural steel because of their architectural interest, but also as an economical solution to maintaining the budget.

These columns were constructed by utilizing pre-fabricated fibreglass forms produced in Hardrock Forming’s yard. The concrete chosen for this architectural feature was Lafarge premier mix “Agilia Architectural Concrete”. This concrete mixture met all the P1 level finishes which were specified for this project and also provided an ease of placement with little or no vibration. Agilia concrete was selected as the best concrete mixture to meet the stringent polished look the architect required. The columns have met all expectations with smooth exposed polished surfaces that will be maintenance free for years to come.



The columns were designed under a teamwork approach with the Client, Designers, Engineers, Construction Manager and Formwork Contractor all involved in the planning of the shape, size and complexity of the elliptical columns. The actual shape of the columns changed slightly during the final stages of the project to suit the quality that was expected and demanded on this project. Hardrock Forming provided professional-



**Owner:** McMaster University  
**Architect:** NORR Limited Architects and Engineers  
**Engineer:** NORR Limited Architects and Engineers  
**General Contractor:** Vanbots Construction Corporation  
**Concrete Supplier:** Lafarge Canada Inc.  
**Mechanical Consultant:** NORR Limited Architects and Engineers  
**Electrical Consultant:** Giffels Design-Build Inc.  
**Formwork Contractor:** Hardrock Forming  
**Reinforcing Steel:** Harris Rebar  
**Formwork Supplier:** Peri Formwork Systems Inc.

### Additional Participants:

- Quinn Dressel Associates
- Carpenters Local 18 joint project with Carpenters Local 27
- LIUNA Local 837 & 506
- Ironworkers Local 736
- Aluma Systems Canada Inc.

### Project Facts:

- \$5 Million in costs
- 3,800 square feet in size
- Equivalent to 5 storeys
- Hanging conference room
- Construction commenced Fall 2004
- Construction completed Summer 2005
- Finishes: Terrazzo floors, limestone from Owen Sound, double glazed curtainwall and drywall ceiling, exposed polished concrete columns



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ism, leadership and experience, which allowed these columns to be much more than a structural component to this atrium.

While the concrete provided an economical solution, it was the tradesmen from Hardrock, teamed with Peri Forms who built the sub-frame for the column forms who brought the end product to life. The sub-forms were lined with a fiberglass/rubber liner, which provided the smooth finish for the concrete. The actual liner had to be replaced during construction due to the fact that the concrete was being poured during the winter months and the temperature changes resulted in hairline cracks in the fibreglass.

Hardrock's dedication and commitment to quality was apparent not only in the replacement of the liner, but in the quality of the installation of the Agilia Architectural Concrete. Hardrock took particular pride in their work to ensure the integrity of the finished project was not compromised from design through to application of this high quality product. It is this kind of commitment from every team member that has given McMaster University an outstanding feature in the new DeGroot Centre for Learning & Discovery.



*2005 Ontario Concrete Award winning project for  
Material Development & 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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