

INSTITUTIONAL BUILDING

UNIVERSITY OF WINDSOR CENTRE FOR ENGINEERING INNOVATION



PROJECT CREDITS

OWNER

University of Windsor

ARCHITECT OF RECORD

B+H Architects

ENGINEER OF RECORD

Halsall Associates

GENERAL CONTRACTOR

PCR Contractors Inc.

FORMWORK SUPPLIER

Aluma Systems Inc.

MATERIAL SUPPLIER

St Marys CBM

ADDITIONAL PARTICIPANTS

- Aleo Associates
- BASF Canada Inc.
- Carpenters Local 494
- Harris Rebar
- Ironworkers Local 700
- LIUNA Local 625
- Smith + Anderson

PROJECT FACTS

LOCATION Windsor, Ontario

COMPLETION September 2012

BUDGET \$91,000,000

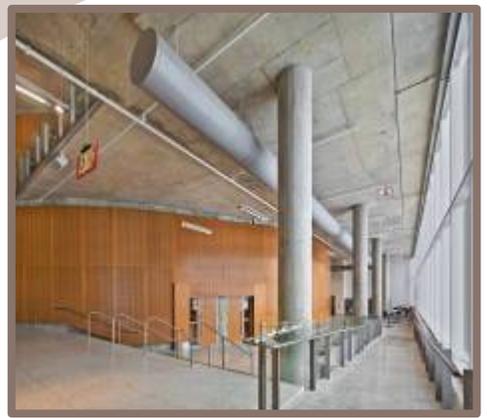
SIZE

- 328,000 square feet
- 1,100 tons of reinforcing steel
- 15,290 m³ of concrete
- 110,000 sq ft of precast hollowcore floors with Thermodeck

QUICK PROJECT FACTS

- LEED Gold Certified
- Three building levels with open atrium





New 328,000 square foot LEED Gold Engineering Building

The University Engineering building consists of 328,000 square feet, spread over 3 floors incorporating Engineering Labs and workstations to theater style classrooms and one of the largest strong walls/slab in North America.

The building itself is designed to educate the students with many varying techniques and materials used to construct the superstructure. Concrete plays a very high profile role in the construction, with many walls and floors fully exposed along with some of the vertical and horizontal precast members.

The flooring systems range from full cast-in-place suspended slabs to composite deck and hollowcore slabs with concrete toppings. These same hollowcore slabs are integral to the HVAC system for air distribution, using the voids in the slabs as ductwork at the same time heating/cooling the slabs as a radiant heat system.

When the strong slab was poured with the corresponding strong wall, a couple of low heat mixes were used to reduce the heat build-up in these massive structures. The slab was approximately 700 m³ monolithic slab with inserts as tight as 0.3 m 0.6 m spacing. The massive 10.8 m tall wall used 160 m³ poured monolithically at a controlled rate to reduce form pressures, and since it was 1.5 m thick, it too was cast using a low heat of hydration mix.

Within the large Atrium, there are many bridges spanning from one side to the other for walkways. Each structure is constructed using a different type of bridge design from slab supported by open joists to integral concrete beam to a cable supported structure. This is an example of the building playing a role in the education.



PCR Contractors used many of the CBM Maximizers during the construction over many seasons, from Mid-Range and High Range plasticizers to full Self Consolidated Concrete mixes on some of the exposed columns. In order to accelerate the schedule and reduce shoring requirements, the CBM First Up mix was used in most of the beams that supported the hollowcore flooring. Designed to give 75% within 2 or 3 days, PCR was able to strip the forming and didn't need to re-shore the structure.

The building is designed as a LEED Gold Certified and incorporates approximately 15,200 m³ of concrete with an overall recycled content of 49%.

PCR and the whole construction team are very proud to be involved in the construction of this facility which could educate the Engineers of the future that one day might be judging these very same Ontario Concrete Awards.

