

## Introduction



The Architectural Engineering 5<sup>th</sup> year senior thesis is an investigative and design-oriented project based on a building or a building model obtained from an outside sponsor. Throughout the course of this year-long project, the students are required to investigate the background of the project, including the existing design and other engineering related issues. The students are then to redesign in depth one major portion of the building system, depending on their specialized option work. A breadth redesign portion of the project is also required to demonstrate the student's broad knowledge of the architectural engineering field.

For the study of the Bahen Centre for Information Technology, a lighting redesign will be performed on four spaces: Gallery, Lecture Hall, Meeting Room, and the Outdoor Courtyard. The depth study also involves a study of the existing electrical system in the building.

Also required as part of the senior thesis is the study of two breadth areas. The first breadth study will involve the analysis and redesign of the existing acoustics of the Lecture Hall. The second breadth topic will involve the analysis and comparison of different types of glazing to be used in the Gallery space. This comparison will be based on the daylight transmission properties and the heat insulating properties of the glazing. Recommendations will be made from the results of both the depth and breadth analysis.



# The Bahen Centre for Information Technology

University of Toronto - Toronto, Ontario, Canada

## Project Background



The Bahen Centre for Information Technology, located in the heart of downtown Toronto in the University of Toronto's St. George Campus, is the latest addition to the campus-wide building project for the University of Toronto. The 8 stories high, 377,000 square foot building features 11 lecture halls, 14 tutorial/seminar rooms, and over 50 laboratories. It will serve as the teaching and research facility for the departments of electrical engineering, computer engineering and computer science for the university. The \$100 million (\$150 million Canadian dollar) facility is scheduled for completion in April 2002 and it will be the largest of its kind amongst Canadian universities.

Nestled between the Koffler Student Centre and the intersection of St. George Street and Russell Street, the Bahen Centre is a brilliant example of modern architecture

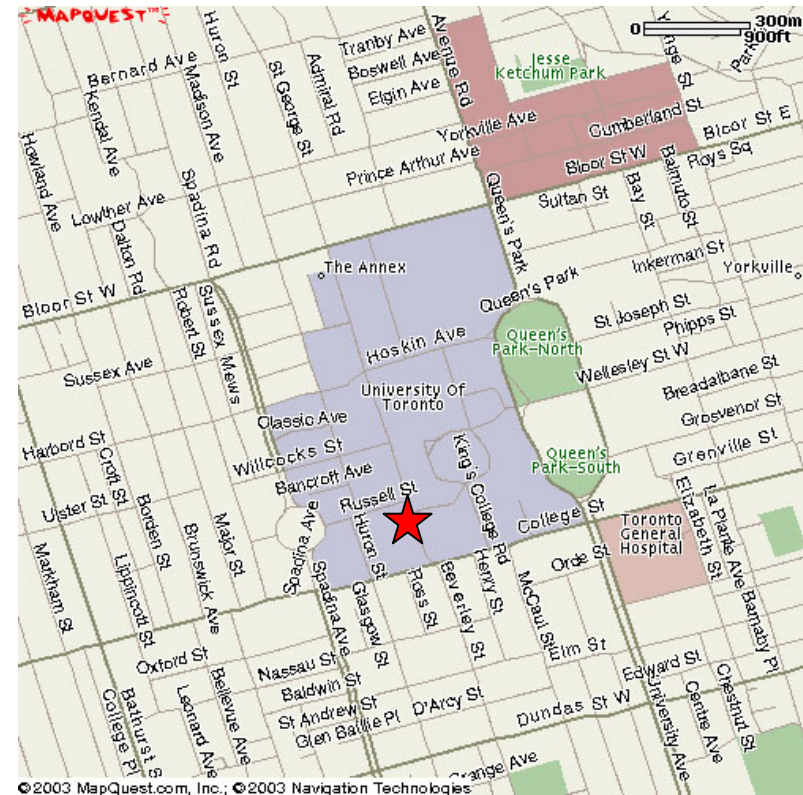
merging with the existing classical architecture of the St. George campus. When first entering the Bahen Centre from the St. George Street entrance, one will definitely notice that the brand new Bahen Centre is actually attached to the existing Koffler Student Centre adjacent to it. Since the Koffler Student Centre was listed as a historic building, the architect designed the Bahen Centre so that the grand atrium is attached to the Koffler Student Center while preserving the historical building façade. Another main feature of the building is the grand staircase located in the atrium of the Bahen Centre. The super scaled spiral staircase made of steel and glass runs from the 1<sup>st</sup> floor to the 6<sup>th</sup> floor of the building. Lighted with fiber optics and strip fluorescent lights, it creates masterpiece that serves as one of the main focus of the building.



*Image courtesy of Diamond and Schmitt Architects Inc.*

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Toronto in relation to the Eastern coast of North America; and the location of the Bahen Centre for Information Technology in Downtown Toronto.

*(Maps courtesy of mapquest.com)*

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## Project Information

The \$100 million dollar Bahen Centre for Information Technology at the University of Toronto is a project that requires the teamwork and cooperation from various fields of architecture and engineering in order to achieve a building masterpiece.

### Primary Project Team:

- **General Contractor & Construction Management:** PCL Constructors Canada Inc.
- **Architects & Planning:** Diamond and Schmitt Architects Incorporated
  - **Primary Architect for project:** Thom Pratt
- **Structural Engineers:** Read Jones Christoffersen Ltd.
- **Mechanical Engineers:** Keen engineering
- **Electrical Engineers:** Crossey Engineering Ltd
- **Lighting Design:** Crossey Engineering Ltd
- **Cost Consultants:** Helyar Associates
- **Owner:** University of Toronto



Top view of the Bahen Centre for Information Technology  
*Image courtesy of Diamond and Schmitt Architects Inc.*



South view of the Bahen Centre for Information Technology  
*Image courtesy of Diamond and Schmitt Architects Inc.*

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View of the interior atrium

*Image courtesy of Diamond and Schmitt Architects Inc.*

## Date of Construction:

- Construction began in January 2000
- Parking garage completed and turned over March 2002
- Scheduled date of completion: April 2002
- Actual date of completion: August 2002

## Cost Information:

- Overall Project: \$100 million (\$150 million Canadian dollar)
- Total Building Construction Cost: Approximately \$43 (\$65 million Canadian dollar)

## Building Function and Primary Uses:

- Educational, research, and office facility for engineering science and information technology

# The Bahen Centre for Information Technology

University of Toronto - Toronto, Ontario, Canada

## Location and Site:

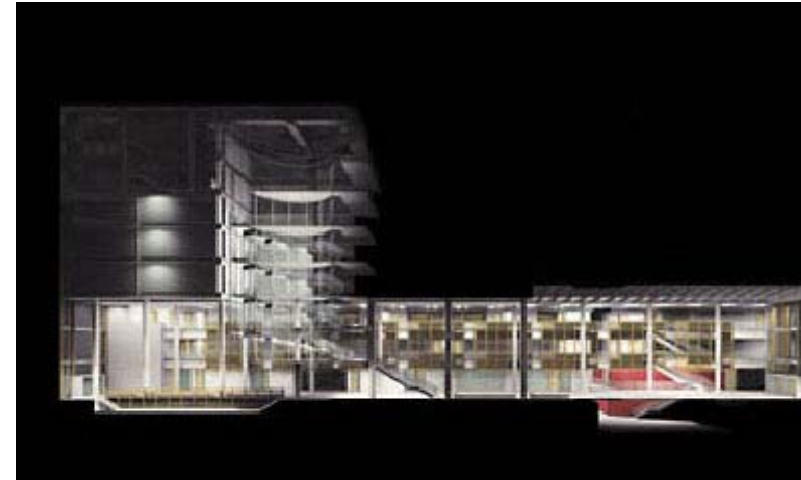
- 40 St. George Street, Toronto, Ontario, Canada  
The building is located in University of Toronto's downtown campus, also known as the St. George campus.

## Major National Model Code(s):

- 1997 Ontario Building Code (OBC) as amended to April 6<sup>th</sup>, 1998, which references to the National Building Code of Canada (NBC)
- National Model Energy Code for Building (NMECB) – ASHRAE 90.1
- 1997 Ontario Fire Code (OFC)
- Ontario Electrical Safety Code, 22, Edition 1998 (OESC)

## Zoning and Historical:

- The Koffler Building, which is adjacent and attached to the Bahen Centre, is a historical building
- There is a 125-year-old historic house within the site, which is incorporated to become part of the Bahen Centre.



*Images courtesy of Diamond and Schmitt Architects Inc.*



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