



CONSULTING ENGINEERS



HH Angus Toronto Office, 1970s

## OVERVIEW

HH Angus and Associates Limited was founded in 1919 and today is one of Canada's largest private engineering firms. Since its inception, HH Angus has been providing consulting engineering services to a broad range of clients in the healthcare, technology, commercial and energy system sectors. We have earned a reputation for delivering superior engineering design and innovative building solutions to industry leaders, both in Canada and internationally. While we have over 100 years of impressive experience, we continue to strive for excellence and to remain at the forefront of design through leading edge technology, standards and practices. HH Angus' ability to provide technical support, design and project management for building services projects offers our clients a comprehensive range of services from concept to commissioning.



**CLIENT FOCUS**

Our designers and engineers are passionate problem solvers. It's not enough for them to find a good solution to your engineering design challenges; they're focused on finding the right solution – the one that addresses your site, your facility, your budget, and your business goals. They excel at seeing the big picture, and then drilling down to the details of making it work for you.

**INNOVATION**

Our research and development teams are constantly exploring new ideas and technologies, including low carbon energy solutions, digital twinning, 3D image scanning, virtual reality construction coordination and more. Sharing this knowledge provides a greater understanding of all available engineering options for new or existing facilities, including impacts on operating and lifecycle costs.

**GLOBAL REACH**

HH Angus continues to explore and develop tools that enable our organization to deliver robust engineering solutions anywhere. Tools that allow our people to work with our clients and project partners through multiple channels, to intelligently connect in real time to achieve common business goals. These tools allow us to successfully serve clients across Canada and around the globe.

**ACCOUNTABILITY**

Each client is assured of a Single Point of Contact overseeing their project. This senior staff member works closely with the Division Director, who serves as Principal in Charge of your project. These two key members of your HH Angus project team will ensure that your business needs are clearly understood by the entire project team and that they are effectively met with solutions that deliver value.

**EXPERIENCE**

At HH Angus, we put our 100+ years of experience and expertise to deliver engineering solutions tailored to your project. As participants in CSA standards committees, we are already setting the framework for facility design of the future. As your consulting engineering partner, we have the right solutions to your business and design challenges. Choosing HH Angus' community of design experts enables the best custom solutions.

**LOYALTY**

We're proud that over 70% of our portfolio comes from repeat clients, some of whom have worked with us for over 70 years. We believe this is the hallmark of HH Angus - to be a trusted advisor to our valued clients, while allowing our creative design team to push the boundaries of innovation and excellence. We're also proud of our stable workforce, who provide our clients with continuity, account expertise and brand equity.





## APPROACH

Challenging convention is the prism through which HH Angus examines our industry, our company, our community and our future. We encourage our employees to ask questions, to foster creativity, to improve process, to promote inventiveness, to envision change. Opening the door to new solutions starts with asking the right questions, having the right discussions and building the right connections in order to provide our clients with the right advice. By doing so, we create a workplace that endorses fresh ideas and that challenges employees to embrace new and creative ways of working together to better serve our clients. The result is strong relationships that endure for years because they're built on a foundation of mutual trust and mutual respect.



## BUILDING INFORMATION MODELING (BIM)

We were early adopters of BIM and are using database-structured BIM software, such as Revit® MEP, as our primary design tool. HH Angus has the ability to work in the latest version of Revit, and is well-versed in the BIM standards and protocols outlined in the AIA Standards. We carry 100+ licences for mechanical and electrical staff who are trained to design and model building systems in Revit, including HVAC, plumbing, electrical distribution and lighting. We are also well versed in the Autodesk suite of design products, in addition to other relevant third party database and analysis software.

For any project, our goal is to identify and deliver on the particular BIM needs of the client's facility. This often involves finding innovative ways to use Revit, using other BIM-driven software, using 3D scanning techniques or 360 cameras, or creating a customized approach to analyzing, processing and managing data through the Revit API and Dynamo. We have the flexibility to meet your needs at every phase of your project's lifecycle, including facilities management.

Early adopter of Revit

100+ licences and trained staff

Over 5 million ft2 of REVIT modeling





“

*Anything else you're interested in  
is not going to happen if you can't  
breathe the air and drink the water.  
Don't sit this one out. Do something.  
You are by accident of fate alive at  
an absolutely critical moment in the  
history of our planet.*

*Carl Sagan*

Toronto Dominion Centre Infrastructure Renewal - Toronto ON

## CLIMATE CHANGE AND SUSTAINABILITY

There is a climate challenge that will require both local and global efforts to overcome. The AEC sector can influence positive change and HH Angus is well positioned to work with designers, contractors and building owners to provide low carbon and energy efficient solutions. The green building industry has transformed the market place over the last twenty years and with over ten million square feet of LEED projects behind us, HH Angus has been a key player in this transformation.

Resilient, durable and energy efficient design solutions are core elements of building systems that:

- are powered, heated and cooled by low carbon sources
- consume less energy (efficiency and conservation)
- have a long life (resource conservation)
- minimize pollution and waste (environmental impact), and
- provide a healthy and productive environment (indoor air quality and comfortably-lit spaces)

At HH Angus, we recognize that there is no one silver bullet that delivers sustainable performance; it requires myriad building systems to work together in an efficient manner. To arrive at an energy efficient and low/no-carbon outcomes, systems to be considered include:

- Alternative Fuel Systems
- Wind
- Geo-exchange
- Battery Storage
- Natural Waste Treatment
- Cogeneration
- Photo Voltaic (solar)
- Passive Heat Recovery Systems
- Water Conservation
- Light Harvesting

We have deep experience designing building systems that meet or exceed industry benchmarks such as:

- LEED – NC, EB&OM, CI
- Net Zero
- WELL
- Living Building Challenge



## LOOKING TO THE FUTURE TO DESIGN FOR TODAY

If there's one constant, it's change. Tomorrow's world will be different than today's in a multitude of ways. HH Angus has been in business for over 100 years because we foster an environment where innovation thrives so we can help our clients anticipate and prepare for today and the future.

### Research

Design codes do not always account for new challenges. The research we undertake helps us better understand how to adapt our designs to future challenges such as climate change, changing infrastructure needs and new technology. Some of our current research includes such areas as low carbon energy solutions, smart building solutions and digital twinning.

### Innovation Hub

We actively seek ideas from all our people – regardless of location, role and level of experience – and support promising initiatives. Staff can submit ideas at any time through our online portal and through charrettes held during the year. This approach nurtures innovation and cultivates collaborations with clients and other partners in our industry.

### Technology

We constantly evaluate new technologies that can help every client's project achieve its potential. We're exploring exciting technologies such as parametric energy modeling, virtual reality construction coordination, 3D image scanning, digital twinning, new battery storage methods, machine learning, and more.





## SECTORS

Commercial  
Cultural  
Education  
Energy + Utilities  
Healthcare  
Hospitality + Entertainment  
Industrial  
Laboratories + Research Facilities  
Mission Critical Facilities  
Public Sector  
Sports + Recreation  
Transportation





## SERVICES

**Mechanical  
Electrical  
Lighting  
Tenant Fitout  
IMIT**

- Audio-visual
- Communications
- Security
- Smart Buildings
- Information Technology
- Network Design

**Commissioning  
Vertical Transportation  
BIM Development and Management  
Energy Modeling and Simulation  
Sustainability  
Other Services**

- Compliance Consulting
- Data Management
- Infrastructure Renewal
- Equipment Procurement
- Factory Witness Testing
- Feasibility Studies
- Inspection
- Lifecycle Costing
- Master Planning
- Operations Training
- Peer Review
- Photo Voltaic
- Photometrics
- Project Management



# WESTERN CANADA



Image courtesy of EllisDon and Kasian

## [Royal Inland Hospital New Patient Care Tower - Kamloops, BC](#)

**Client:** EllisDon

**Sponsor:** Interior Health, BC | Partnerships BC

**Role:** Mechanical & electrical engineering

**Completion Date:** Phase 1: 2022   Phase 2: 2024

**Architects:** Parkin Architects Limited | Kasian Architecture





Images courtesy of Hudson Pacific Properties

### Burrard Exchange (Bentall Centre, 1025 Dunsmuir) - Vancouver, BC

**Client:** Hudson Pacific Properties | Blackstone Property Partners

**Role:** Mechanical & electrical engineering  
Fire protection  
Energy modeling  
ICAT consulting

**Completion Date:** To be confirmed

**Architect:** Kohn Pedersen Fox, Design Architects, Adamson Architects, Architect of Record



Image courtesy of Creative Energy

### Expo Boulevard Steam Plant - Vancouver, BC

**Client:** Creative Energy

**Role:** Mechanical engineering  
Plumbing design  
Fire protection

**Completion Date:** Scheduled for 2023

**Architect:** WSP





### Northern Alberta Institute of Technology (NAIT) - Edmonton, AB

**Client:** Northern Alberta Institute of Technology (NAIT)

**Role:** Stakeholder engagement  
Desktop studies  
Strategy & roadmap development

**Completion Date:** To be confirmed



### The Cooperators Canada Tenant Fitout - Regina, SK

**Client:** The Cooperators Canada

**Role:** Mechanical & electrical engineering  
Audio-visual design  
Communications design  
ICAT design

**Completion Date:** 2020

**Project Partners:** HOK, JLL and PCL





Image courtesy of Mark Yoo

### Penticton Regional Hospital, David E. Kampe Patient Care Tower - Penticton, BC

**Client:** EllisDon

**Sponsor:** Interior Health, BC | Partnerships BC

**Role:** Mechanical & electrical engineering  
Vertical transportation design  
Energy modeling  
ICAT consulting

**Completion Date:** Phase 1: 2019 Phase 2: 2021

**Architect:** Parkin Architects Limited



Phase 2 image courtesy of Fraser Health

### Royal Columbian Hospital Redevelopment - New Westminster, BC

**Client:** Fraser Health Authority | Partnerships BC

**Role:** Owners compliance engineer including site utility master planning and Phase 2/3 Business Case  
Mechanical & electrical engineering  
Energy modeling  
Nurse call & security  
Vertical transportation  
Commissioning authority

**Completion Date:** Phase 1: 2019 Phase 2: 2024 Phase 3: 2026

**Architect:** Phase 1 - CannonDesign (Compliance Architect) Phase 2 - IBI



### North Battleford Mental Health and Corrections Facility - North Battleford, SK

**Sponsor:** Sask Builds

**Role:** Security & communications systems compliance consultant  
Audio visual systems compliance consultant

**Completion Date:** 2018

**Architect:** CannonDesign (Compliance Architect)



### Lions Gate Hospital Power Plant Replacement - North Vancouver, BC

**Client:** DIALOG

**Sponsor:** Lions Gate Hospital

**Role:** Mechanical & electrical engineering  
IMIT consultant

**Completion Date:** 2020





### Royal Jubilee Hospital, Patient Care Centre - Victoria, BC

**Client:** Acciona Lark Joint Venture

**Sponsor:** Vancouver Island Health Authority | Partnerships BC

**Role:** Mechanical & electrical engineering  
IMIT engineering  
Vertical transportation design  
Security design consultant  
Energy Modelling  
Lighting design

**Completion Date:** 2010

**Architect:** CannonDesign



### Super Internet Data Centre - Kamloops, BC

**Client:** TELUS Canada

**Role:** Owner's representative through commissioning  
Owner's representative for Uptime Institute On-site Tier III accreditation audit

**Completion Date:** 2012



### Yukon Energy Gas Drive - Yukon

**Client:** Yukon Energy

**Role:** Electrical engineering

**Completion Date:** 2015



### Mount Royal University, Conservatory and Performance Hall Facilities - Calgary, AB

**Client:** Mount Royal University

**Role:** Mechanical & electrical engineering  
Telecommunications & security engineers

**Completion Date:** 2015

**Architect:** Pfeiffer Partners Architects Inc.





### Jasper Activity and Aquatic Centre - Jasper, AB

**Client:** The Town of Jasper

**Role:** Mechanical & electrical engineering  
Energy modeling  
Lighting design

**Completion Date:** 2011

**Architect:** Toker + Associates



Image courtesy of Fort St. John Hospital

### Fort St. John Hospital and Peace Villa - Fort St. John, BC

**Client:** Acciona, Stuart Olson Joint Venture

**Sponsor:** Northern Health Authority | Partnerships BC

**Role:** Mechanical & electrical engineering  
IMIT & security consulting  
Vertical transportation design  
Lighting design

**Completion Date:** 2012

**Architect:** CannonDesign

ADDITIONAL WESTERN CANADA EXPERIENCE

Translink, Commercial Broadway Station | Vancouver, BC

Lighting design for the new station platform at Translink's busiest station.

Interior Health Authority | Kelowna and Vernon, BC

Electrical compliance engineering on 3 separate P3 packages with Interior Health Authority at their Kelowna and Vernon sites. The three buildings total nearly 700,000 ft2.

Jack Ady Cancer Centre | Lethbridge, AB

Mechanical engineering services for new addition of the Cancer Centre and 22,000 ft2 of renovations at the Chinook Regional Hospital.

Taylor Family Digital Library, University of Calgary | Calgary, AB

Vertical transportation design for the 265,000 ft2 facility considered to be one of the most innovative and technologically advanced libraries in North America

West Fraser Timber Cogeneration Plant | Slave Lake, AB

Electrical engineering services for a new 9 MW bio-gas fed cogeneration facility

Lakeland College Cogeneration Plant Feasibility Study | Vermillion, AB

Feasibility study for a gas powered cogeneration unit in the existing heating plant at Lakeland College

O.S. Longman Office Building | Edmonton, AB

Prime consulting, mechanical and electrical engineering services for a major retrofit of a 100,000 ft2 government office and laboratory building

Edmonton Federal Building and Centennial Plaza Redevelopment | Edmonton, AB

Vertical transportation services for a 325,000 ft2 government office building

Grey Nuns Hospital Maternal Newborn | Edmonton, AB

Mechanical engineers for the complex renovation and expansion of the Grey Nuns Community Hospital including New Neonatal ICU and LBRP rooms.

Calgary Courts Centre | Calgary, AB

Vertical transportation services for a 1,000,000 ft2 government courts and office complex spanning two 20-storey + towers

Epcor Tower | Edmonton, AB

Vertical transportation services for a 624,000 ft2, 28-storey office building

LRT Extension | Calgary, AB

Mechanical and electrical engineering services for eight passenger stations of the original C-Train Northeast line consisting of traction power substations and track power/signalling services



# COMMERCIAL



**Toronto Dominion Centre  
Infrastructure Renewal -  
Toronto, ON**

**Client:** Cadillac Fairview

**Role:** Mechanical & electrical  
engineering

**Completion Date:** Ongoing

**Architect:** B+H Architects



**Ernst & Young, 100  
Adelaide Tower, Multi-Floor  
Fitout - Toronto, ON**

**Client:** Ernst & Young

**Role:** Mechanical & electrical  
engineering  
Lighting design

**Completion Date:** 2018

**Architect:** HOK



Image courtesy of Sirlin Giller & Malek Architects

### eBay - Toronto, ON

**Client:** eBay

**Role:** Mechanical & electrical engineering

**Completion Date:** 2014

**Designers:** Valerio Dewalt Train Associates | Sirlin Giller & Malek Architects



### 180 Wellington Street West Refresh - Toronto, ON

**Client:** RBC/CBRE

**Role:** Mechanical & electrical engineering

**Completion Date:** 2013

**Architect:** Stantec



### TD Bank Group - Project Lego - Toronto, ON

**Client:** TD Bank Group

**Role:** Mechanical engineering

**Completion Date:** 2015

**Project Partners:** EllisDon

**Designer:** HOK



### Teknion - Toronto, ON

**Client:** Teknion

**Role:** Mechanical & electrical engineering  
Lighting design

**Completion Date:** 2016

**Designer:** SGH Design



ADDITIONAL COMMERCIAL EXPERIENCE

Scotiabank Ecosystem Program | Toronto, ON

Mechanical, electrical, audio-visual and communications engineering services for a ‘refresh’ of Scotiabank’s office space in and immediately around Scotia Plaza in downtown Toronto

Co-Operators Office Building | Guelph, ON

Mechanical and electrical engineering services for the 250,000 ft2 base building and fitout

The New Oshawa Clinic | West Whitby, ON

Mechanical and electrical engineering services for the 120,000 ft2 offices, clinic space and retail pharmacy

Uber | Toronto, ON

Mechanical and electrical engineering services for Uber’s office fit-out in downtown Toronto

Holt Renfrew Head Office Renovation | Toronto, ON

Lighting engineering services for the renovations of the headquarters of iconic Canadian retail fashion brand Holt Renfrew

Steeles technology Campus | Toronto, ON

Electrical and communications engineering services for the design and construction of a 2,000,000 ft2 commercial office development which included office space, call centre, network management centre, conference and training centre, fitness facility, dining hall, and various retail spaces

GE Gas Engine Manufacturing Plant | Welland, ON

Mechanical, electrical, security, communications, IT, vertical transportation and lighting engineering services for GE’s most advanced state-of-the-art, 450,000 ft2 gas engine plant which is the first of its kind in Canada

INTACT | Toronto, ON

Mechanical, electrical, communications and lighting engineering services for a 200,000 ft2 renovation and fit-out for INTACT Financial in downtown Toronto

City Hall Renovations | Toronto, ON

Mechanical, electrical, communications, security and audio-visual engineering services for the renovation of the iconic Toronto City Hall building

Bay Adelaide Centre West Elevators| Toronto, ON

Vertical transportation engineering services for this 51-storey, 1, 160,000 ft2 commercial high-rise tower

Penguin Random House Tenant Fit-out | Toronto, ON

Mechanical, electrical, communications and lighting engineering services Penguin Random House’s office fit-out in a downtown commercial high-rise building

Kohler Signature Store Tenant Fit-out | Toronto, ON

Mechanical and electrical engineering services for Kohler’s signature luxury showroom

TD Centre Towers 1-3 High Voltage Electrical Distribution Upgrade | Toronto, ON

Prime consultant and electrical engineering services to replace existing transformers at Cadillac Fairview’s TD Centre property

Canary Wharf Canada Square Tower | London, UK

Electrical engineering services for the 50-storey, 1,248,000 ft2 office tower in London’s Canary Wharf

# HEALTHCARE



## Centre hospitalier de l'Université de Montréal (CHUM) - Montréal, QC

**Client:** Construction Santé Montréal

**Role:** Mechanical & electrical engineering  
Security design consulting

**Completion Date:** Phase 1 - 2017

**Architect:** CannonDesign



## Mount Sinai Hospital - Phase 3 Redevelopment - Toronto, ON

**Client:** Mount Sinai Hospital

**Role:** Mechanical & electrical engineering

**Completion Date:** 2022

**Architect:** Stantec





Image courtesy of Cicada Design

### St. Michael's Hospital - Peter Gilgan Patient Care Tower - Toronto, ON

**Client:** St. Michael's Hospital  
| Infrastructure  
Ontario (IO)

**Role:** Mechanical & electrical  
compliance engineering

**Completion Date:** 2019

**Architect:** Diamond Schmitt  
Architects



Image courtesy of CannonDesign Ltd.

### Michael Garron Hospital, Patient Care Tower - Toronto, ON

**Client:** Michael Garron  
Hospital | IO

**Role:** Mechanical & electrical  
compliance engineering  
Vertical transportation  
Design compliance  
ICAT/IMIT compliance

**Completion Date:** 2023

**Architect:** CannonDesign



### Joseph Brant Hospital - Burlington, ON

**Client:** Joseph Brant Hospital  
| IO

**Role:** ICAT strategy  
Mechanical & electrical  
compliance engineering

**Completion Date:** 2018



### Oakville Trafalgar Memorial Hospital - Oakville, ON

**Client:** EllisDon

**Sponsor:** Halton Healthcare  
| IO

**Role:** Mechanical engineering  
Vertical transportation  
Commissioning

**Completion Date:** 2015

**Architects:** Parkin Architects  
Limited |  
Adamson and  
Associates  
Architects

ADDITIONAL HEALTHCARE EXPERIENCE

Holland Bloorview Kids Rehabilitation Hospital | Toronto, ON

Mechanical, electrical, IT, communications and lighting engineering services for the 5-storey, 343,000 ft2 rehabilitation inpatient/outpatient facility

Humber River Regional Hospital | Toronto, ON

Mechanical, electrical and vertical transportation engineering services for redevelopment and amalgamation of three hospitals, including over 150,000 ft2 of expansion and extensive renovations to existing buildings

Sunnybrook Health Sciences Centre | Toronto, ON

Providing mechanical and electrical engineering services to this client since 1945, including driving a program of major expansion and redevelopment to the 2,200,000 ft2 hospital and research campus

St. Joseph's Healthcare Perioperative Suite and Diagnostic Imaging Expansion | Hamilton, ON

Mechanical, electrical engineering services for the 130,000 ft2 expansion

Royal Victoria Regional Health Centre | Barrie, ON

Mechanical, electrical and lighting engineering services for the hospital's major 300,000 ft2 renovation and expansion

North Bay Regional Health Centre | North Bay, ON

Mechanical, electrical, communications, vertical transportation and lighting engineering services for the 725,000 ft2, 275-bed acute care and mental health facility, one of the first LEED-registered healthcare buildings in Canada

Stronach Regional Health Cancer Centre | Newmarket, ON

Mechanical and electrical engineering services for a new 100,000 ft2 cancer care facility.

Family Health Centre | Bradford, ON

Mechanical and electrical engineering services for 11,000 ft2 renovation.

William Osler Health Centre | Brampton, ON

Mechanical engineering services for the 620,000 ft2 Inpatient Wing

Cambridge Memorial Hospital Cogeneration | Cambridge, ON

Prime consultant, mechanical and electrical engineering for a 1500 kW containerized outdoor cogeneration facility

Lakeridge Health Combined Heat and Power | Oshawa, ON

Electrical engineering services to integrate a new indoor 4160 V cogeneration machine into the existing electrical system at Lakeridge Health with the goal of displacing utility electricity



# MISSION CRITICAL + LABORATORY/ RESEARCH FACILITIES



Image courtesy of Ericsson

## Global Information and Communication Technology (ICT) Center - Montréal, QC

**Client:** Ericsson Canada

**Role:** Prime consultant  
Mechanical & electrical  
engineering

**Completion Date:** 2016

**Architect:** WZMH Architects



## Computer Centre Design and Expansion - Markham, ON

**Client:** HP Canada

**Role:** Prime consulting  
Mechanical & electrical  
engineering  
Strategic planning  
Commissioning

**Completion Date:** 1988 -  
2010



### Peter Gilgan Centre for Research and Learning - Toronto, ON

**Client:** The Hospital for Sick Children

**Role:** Mechanical & electrical engineering  
Vertical transportation design  
IT communications design  
Lighting design

**Completion Date:** 2013

**Architect:** Diamond Schmitt Architects



### Li Ka Shing Knowledge Institute - Toronto, ON

**Client:** St. Michael's Hospital

**Role:** Mechanical & electrical engineering

**Completion Date:** 2011

**Architect:** Diamond Schmitt Architects



### MaRS II Building - Toronto, ON

**Client:** Public Health Ontario Laboratories

**Role:** Mechanical & electrical engineering  
Vertical transportation design  
Lighting design  
Communications & security

**Completion Date:** 2014

**Architect:** Diamond Schmitt Architects



### Forensic Services and Coroner's Complex - Toronto, ON

**Client:** Infrastructure Ontario

**Role:** Mechanical & electrical compliance engineering  
Communications design

**Completion Date:** 2013

**Architect:** WZMH Architects



**ADDITIONAL MISSION CRITICAL + LABORATORY/RESEARCH FACILITIES EXPERIENCE**

**St. Michael's Hospital and Ryerson University Laboratory Fit-out | Toronto, ON**

Mechanical, electrical, communications, IT and lighting engineering services for the fit-out of shared laboratory space for St. Michael's Hospital and Ryerson University

**Toronto Zoo Wildlife Health Centre | Toronto, ON**

Mechanical, electrical and lighting engineering services for a new state-of-the-art animal hospital, laboratory services and research centre

**Queen's University Biomedical Research Facility | Kingston, ON**

Mechanical, electrical, security, communications, vertical transportation and lighting engineering services for the renovation of animal vivarium and research facility

**Canadian Centre for Inland Waterways Lab | Toronto, ON**

Mechanical, electrical, communications, security, IT and audio-visual engineering services for the modernization of the Canadian Centre for Inland Waterways lab facility with the renovation focusing on energy efficiency and climate change improvements

**Summerlee Science Complex | Guelph, ON**

Mechanical and electrical engineering services for a new 4-storey, 360,000 ft2 (completed in two phases) science complex including teaching labs, research wet labs, greenhouse facility on the roof and extensive chemical storage area

**Reactors Material Testing Laboratory | Kingston, ON**

Mechanical and electrical engineering services for a new 8,000 ft2 reactor materials testing laboratory for Queen's University's Nuclear Materials Group

**SOC - Operation Centre | Toronto, ON**

Prime Consultant, master planning, feasibility planning, mechanical and electrical engineers, controls engineering design, factory witness testing and commissioning for the 300,000 ft2 computer centre

**Citigroup European Headquarters Computer Centre | London, UK**

Electrical and communications engineering services for a 30,000 ft2 server farm/computer centre and 42 floors of communications tech rooms supported by a 6-1600 kW rotary diesel UPS units for 9.6 MW of back-up power to critical operations

**Confidential Client Data Centre Expansion**

Mechanical and electrical engineering services for a significant data centre expansion which included a central cooling plant and emergency generation system, 3,750 ton VFD high pressure centrifugal chiller, three 750 ton induced draft cooling towers, and flexible design for future expansion capacity

**Chemical and Physical Sciences Lab Renovation | Mississauga, ON**

Mechanical and electrical engineering services for a complex 3,000 ft2 laboratory renovation at the University of Toronto Mississauga campus

**McMaster University CL-3 BioContainment Animal Suite | Hamilton, ON**

Mechanical and electrical engineering for a new 1,600 ft2 CI-3 facility

**Centralized Intravenous Admixing Facility | Mississauga, ON**

Mechanical and electrical engineering services for a Centralized Intravenous Admixing (CIVA) facility for Baxter Canada featuring state-of-the-art clean room technology and monitoring processes

**Hydro One - Ontario Grid Control Centre | Barrie, ON**

Mechanical and electrical engineering services for the grid operations centre

# EDUCATION



**Leslie L. Dan Faculty of Pharmacy - Toronto, ON**

**Client:** University of Toronto  
**Role:** Mechanical & electrical engineering  
Lighting design  
Vertical transportation design

**Completion Date:** 2006

**Architects:** Foster and Partners |  
Moffat Kinoshita Architects



**Mike and Ophelia Lazaridis Quantum-Nano Centre - Waterloo, ON**

**Client:** University of Waterloo  
**Role:** Mechanical & electrical engineering  
Security design  
Communications design  
Vertical transportation design

**Completion Date:** 2013

**Architect:** KPMB Architects





**Terrence Donnelly  
Centre for Cellular and  
Biomolecular Research -  
Toronto, ON**

**Client:** University of Toronto

**Role:** Mechanical & electrical  
engineering  
Vertical transportation  
review  
Communications &  
security design

**Completion Date:** 2006

**Architects:** Behnisch  
Architekten |  
architectsAlliance



**Queen's University, School  
of Medicine - Kingston, ON**

**Client:** Queen's University

**Role:** Mechanical & electrical  
engineering

**Completion Date:** 2006

**Architect:** Diamond Schmitt  
Architects

Image courtesy of Diamond Schmitt Architects



**Student Welcome and  
Resource Centre - Toronto,  
ON**

**Client:** Humber College

**Role:** Mechanical & electrical  
compliance engineering

**Completion Date:** 2017

**Architect:** Barry Bryan  
Associates  
(Compliance  
Architects)



**Centre for International  
Governance Innovation -  
Waterloo, ON**

**Client:** University of  
Waterloo and Wilfrid  
Laurier University

**Role:** Electrical engineering  
Vertical transportation  
design

**Completion Date:** 2012

**Architect:** KPMB Architects

ADDITIONAL EDUCATION EXPERIENCE

**Tyndale University College and Seminary | Toronto, ON**

Mechanical, electrical and vertical transportation engineering services for a 370,000 ft2 renovation of an existing 1950s structure

**Queen’s University District Energy System | Kingston, ON**

Mechanical and electrical engineering services for the design and implementation of a 15 MW cogeneration facility

**New College Student Residence, University of Toronto | Toronto, ON**

Mechanical and electrical engineering services for 8-storey, 130,000 ft2 student residence with multipurpose activity centre and common rooms

**Humber College Backfill Project D | Toronto, ON**

Mechanical, electrical, IT, communications, audio-visual and lighting engineering services for the renovation of an outdated laboratory space into a bright and lively teaching daycare

**Combined Heat and Power Feasibility Study, University of Toronto | Toronto, ON**

Reviewed heating and power usage of the St. George (downtown) campus to determine the return on investment for three options of natural gas turbines

**Centre for Biological Timing and Cognition, University of Toronto | Toronto, ON**

Mechanical and electrical engineering services for a new 3-storey, 22,000 ft2 addition which included a variety of lab spaces

**Carleton University Behind-the-Meter Generation Study | Ottawa, ON**

Provided a detailed engineering feasibility study requiring energy modeling, equipment sizing, power distribution, thermal distribution, exhaust stack, noise and emissions review, and preparation of CAPEX and OPEX evaluations to meet OPA requirements

**Algonquin College Trigeneration Plant | Ottawa, ON**

Prime consultant, mechanical and electrical engineering services for design and construction of a trigeneration plant

**Wilfrid Laurier University - District Energy System Upgrade | Waterloo, ON**

Mechanical and electrical engineering services for the campus District Energy System



# TRANSPORTATION



Image courtesy of Metrolinx

## Eglinton Crosstown Light Rail Transit - Toronto, ON

**Client:** Crosslinx Transit Solutions

**Sponsor:** Infrastructure Ontario/Metrolinx

**Role:** Mechanical & electrical engineering  
Communications & security design

**Completion Date:** 2021

**Architects:** NORR | IBI Group



## TTC York-Spadina Subway Extension, Pioneer Village and Finch West Stations - Toronto, ON

**Client:** Toronto Transit Commission

**Role:** Mechanical & electrical engineering

**Completion Date:** 2017

**Architect:** IBI Group



## Bermuda International Airport - Bermuda

**Client:** Aecon

**Sponsor:** Bermuda International Airport

**Role:** Mechanical & electrical engineering

**Completion Date:** 2020

**Architect:** Scott Associates Architects Inc.



## Expanded Air Terminal Building - Toronto, ON

**Client:** Billy Bishop Toronto City Airport

**Role:** Mechanical & electrical engineering

**Completion Date:** 2011

**Architect:** Scott Associates Architects Inc.

## ADDITIONAL TRANSPORTATION EXPERIENCE

### Downtown Relief Line South | Toronto, ON

Mechanical and electrical engineering services for 30% schematic design for two key underground stations on the proposed new TTC Downtown Relief Line South

### TTC Sheppard Subway Line, Bayview Station | Toronto, ON

Mechanical, electrical, communications for the design and construction of the TTC Bayview subway station

### Bus Rapid Transit | Mississauga, ON

Mechanical, electrical, vertical transportation and lighting engineering services for the BRT stations on the 9 km line

### Bus Maintenance Facility | Oshawa, ON

Mechanical, electrical, IT, communications, security and lighting engineering services for a greenfield maintenance facility for Durham Transit's fleet of buses

### Pearson International Airport, Terminal 1 | Toronto, ON

Vertical transportation and lighting engineering services for all passenger conveyance devices (elevators, escalators and moving walks) in the 2,800,000 ft<sup>2</sup> facility, as well as lighting in all spaces including the Grand Hall

### Canary Wharf Docklands LRT Station | London, UK

Electrical engineering services for the Dockland LRT station located at the base of the One Canada Square tower in London's Canary Wharf



# HOSPITALITY, ENTERTAIN- MENT, SPORTS, RECREATION + CULTURE



Image courtesy of Chris Dikeakos Architects Inc.

## Pickering Casino Resort - Pickering, ON

**Client:** Great Canadian  
Gaming Corporation

**Role:** Electrical engineering  
Lighting design

**Completion Date:** Ongoing

**Architects:** Chris Dikeakos  
Architects Inc. |  
Climans Green  
Liang Architects  
Inc.



## BMO Field Expansion - Toronto, ON

**Client:** Maple Leaf Sports  
and Entertainment  
(MLSE)

**Role:** Mechanical & electrical  
engineering

**Completion Date:** Phase 1 -  
2015;  
Phase 2 -  
2016

**Architect:** Gensler





### Rogers Centre - Toronto, ON

**Client:** Stadium Corporation  
**Role:** Mechanical & electrical engineering  
**Completion Date:** 1989  
**Architect:** NORR



### Ricarda's - Toronto, ON

**Client:** DESCH Canada Ltd.  
**Role:** Mechanical & electrical engineering  
 Lighting design  
**Completion Date:** 2016  
**Architect:** Thinkform Architecture + Interiors



### Sheraton Hotel - Toronto, ON

**Client:** Sheraton Hotel  
**Role:** Lighting design  
**Completion Date:** 2016  
**Architect:** Architecture Counsel Inc.



### Stratus Restaurant - Toronto, ON

**Client:** Stratus Restaurant  
**Role:** Lighting design  
**Completion Date:** 2016  
**Architect:** B+H Architects



## ADDITIONAL HOSPITALITY, ENTERTAINMENT, SPORTS, RECREATION + CULTURE EXPERIENCE

### Casino Rama Power Infrastructure Upgrade | Chippewas of Rama First Nation, ON

Prime consultant and electrical engineering services to analyze existing power distribution and design and install a 1.2 MW centralized uninterruptable power supply (UPS) that would protect the casino's equipment while minimizing downtime for the gaming systems

### Ontario College of Art and Design (OCAD) Gallery | Toronto, ON

Mechanical, electrical and lighting engineering services for OCAD's professional gallery which includes its permanent art collection, Media Lounge, storage, administration, shipping and receiving areas

### Richardson Stadium Revitalization, Queen's University | Kingston, ON

Mechanical and electrical engineering services for the revitalization of the 8,500 seat stadium

### Ryerson University Pitman Hall Renovations | Toronto, ON

Mechanical, electrical, security, communications, fire protection and lighting engineering services for the renovation of the dining and kitchen facilities in the Pitman Hall residence

### Fabbrica | Toronto, ON

Mechanical, electrical and lighting engineering services for the fit-out of the new Fabbrica restaurant on the concourse level of the TD Centre

### Innisfil Public Library | Innisfil, ON

Mechanical, electrical and lighting engineering services for the renovation and expansion of the Innisfil Public Library Lakeshore branch

### Living Arts Centre Lighting Renewal | Mississauga, ON

Prime consultant, electrical and lighting engineering services to refresh and upgrade the lighting design of this 225,000 ft<sup>2</sup> performing arts facility



# Engineering. Excellence.

555 Burrard St.  
Vancouver, BC  
V7X1M8 Canada

T 604 229 3165  
[van@hhangus.com](mailto:van@hhangus.com)  
[hhangus.com](http://hhangus.com)

Toronto

Montréal

Vancouver

Dallas

Chicago