



Kristen Yee Loong | BASc, P.Eng., LEED® AP BD+C
**Associate, Energy and Sustainability
Specialist**

With over 8 years' experience in sustainable design and construction support, Kristen brings an invaluable depth of knowledge to RDH Toronto. Her expertise includes consulting on energy efficient system design strategies for LEED and code compliance, and simulating building energy use. Kristen is familiar with working on both new construction and existing building types including healthcare, institutional, and residential.

Expertise + Experience

As an Energy and Sustainability Specialist, Kristen's typical responsibilities include performing whole building energy modeling and interpreting their results to analyse energy conservation measures and support capital and life cycle cost analyses. She also performs energy efficiency assessments of existing buildings to identify areas where energy consumption can be reduced and energy savings could be made.

Working with design teams, government agencies and utilities, Kristen gathers energy consumption billing data to benchmark building energy performance using EnergyStar Portfolio Manager to analyze and interpret the results.

Prior to joining RDH in 2016, Kristen worked at a sustainable buildings consulting firm in Toronto as a Senior Energy Analyst where she led the Energy Analyst team and provided technical reviews of analyses and reports. In addition, she performed design reviews and created energy simulations for various energy compliance programs.

Kristen is an Associate and shareholder at RDH and is dedicated to the success of RDH projects.

Education

B.A.Sc. (Honours with Distinction), Systems Design Engineering, University of Waterloo, ON

Memberships + Awards

Member, Professional Engineers Ontario (PEO)

LEED® Accredited Professional, Building Design + Construction

Member, International Building Performance Simulation Association (IBPSA) – Greater Toronto and Hamilton Area Chapter Member

NSERC Undergraduate Student Research Award, Christie Digital Systems Inc., 2007.

President's Award for positive and lasting contributions to UW Engineering Society, Student Life 101 Engineering Showcase, 2004.

Typical Projects

ENERGY EFFICIENCY + SUSTAINABLE DESIGN CONSULTING

Kristen performed energy performance analysis services on a variety of building types and uses. The following is a selection of projects Kristen completed at her previous place of employment:

RESIDENTIAL

- River City Phase 3, Toronto, ON
This high-rise residential building is on its way to achieving its ambitious goals of LEED 2009 NC Gold certification, Toronto Green Standard Tier 2, and the Waterfront Toronto Minimum Green Building Requirements. Investigated energy efficiency measures including chiller type, ERV implementation, lighting power density, fan-coil unit control, and envelope analysis during the concept design phase.
- Region of Peel Housing Retro-commissioning, Brampton, ON
Analyzed five existing multi-unit residential buildings and made recommendations for energy savings opportunities. Analysis included calibration against utility bills and on-site measurement and testing data.

INSTITUTIONAL

- Sage Creek K-8 School, Winnipeg, MB
This school uses a dedicated outdoor air system with demand controlled ventilation to ensure superior air quality, and radiant floor heating and chilled beams for cooling fed by a ground source heat pump system. To assist the school board realize its sustainability goals, a life cycle cost analysis and energy savings study of several mechanical design options was conducted during concept phase to inform the design direction. Targeting LEED NC Gold certification and the Manitoba Power Smart designation.
- Amber Trails High School, Winnipeg, MB
A ground source heat pump system was designed to heat and cool the school building. A study of payback and energy savings for several different plants and HVAC delivery methods was conducted during concept design. This school is targeting LEED NC Gold



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certification as well as the Power Smart designation.

- Northlands Parkway Collegiate, Interlake, MB
This educational facility is LEED NC Gold certified. Completed energy model verification for LEED submission and reviewed metered data trends (daily and hourly) to identify areas for operational improvement, support measurement, and verification.
- University of Massachusetts Amherst Campus Police Station, Amherst, MA
This low-rise police headquarters is USGBC LEED-NC Gold certified. Sustainable design features include: efficient lighting design, high efficiency mechanical equipment with condensing boilers, a distributed ground source heat pump system, and dedicated outdoor air system with energy recovery ventilator.
- Waterloo Region Consolidated Courthouse, Kitchener, ON
As one of the largest courthouse facilities in Ontario, this 425,00 sq ft facility consolidates three regional courts into one seven-storey facility. Sustainable features include low-flow plumbing fixtures, use of recycled and regional materials, low-emitting furniture and finishes. LEED NC Gold certified.

HEALTHCARE

- Mackenzie Vaughan Hospital – P3 Pursuit, Vaughan, ON
Sustainability targets include LEED NC Silver certification, building energy intensity of 4.0 GJ/m²/year, and select requirements aligning with LEED for Healthcare. The building will harness chiller waste heat recovery for hot water heating throughout the building and utilize an enhanced sequence of operations to maximize heat recovery while reducing energy costs. Redundant air handlers allow for partload operation, thereby reducing fan energy.
- Kingston Providence Care Hospital, Kingston, ON
This ambulatory care centre aims to lower their energy consumption through a high performance envelope, efficient lighting design, and enhanced sequence of operations taking advantage of heat recovery chillers and energy recovery wheels. Targeting LEED NC Silver certification.

COMMERCIAL

- Ministry of Transportation (MTO) COMPASS - Traffic Operations Centre, Toronto, ON
The design and construction phase of the MTO development which houses the Ministry's Central Region COMPASS Traffic Operations

and emergency response services. Sustainable and energy efficient strategies include stormwater control, dedicated outdoor air units with energy recovery ventilators and demand control ventilation operation, and variable refrigerant-flow heat recovery to harness waste heat from the equipment intensive facility. Targeting LEED NC Silver.

RECREATIONAL

- West Orillia Sports Complex, Orillia, ON
This complex includes a twin ice-pad, meeting rooms, and community rooms. Key energy efficiency measures include waste heat recovery from the ice refrigeration system, an arena ceiling design that reduces refrigeration loads of the ice pads, and energy recovery ventilators serving all areas of the building with demand controlled ventilation in areas with high occupancy fluctuations. LEED NC Silver certified.
- Bradford West Gwillimbury Library and Cultural Centre, Bradford, ON
This library and cultural centre is located on the same site as its future town hall. Energy efficiency features include occupancy and daylighting sensors, hydronic roof top units, modulating condensing boilers with low temperature reset, and demand control ventilation. LEED NC Gold certified.

RESEARCH + GUIDELINES

- Blind River PV Feasibility Study, Blind River, ON
Conducted a feasibility analysis for a solar farm in Blind River which involved the assessment of available technologies, land requirements, climate analysis, and operation and maintenance. A number of variables were explored that included pitched systems, tracking systems, and size of installed systems. The study included a payback and sensitivity analysis.
- Energy Guidelines for Older Homes, London, ON
The Energy Efficiency Guidelines for Older Homes was developed to provide ideas for opportunities to improve the energy efficiency and comfort of residences, while also conserving the unique heritage attributes and character of older homes. These guidelines provide strategies for energy improvements and suggestions residents and property owners.