

# Lareina Chen

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## Key Skills

**Certifications:** LEED Green Associate, Driver's License G, Safety Awareness, Workplace Hazardous Materials Information Systems (WHMIS), Fall Safety Awareness, WHMIS and Lab Safety

**Design Tools:** WUFI, Therm 7.6, AutoCAD, Revit, SketchUp, Illustrator, InDesign, Photoshop, Tekla Structural Design, S-Frame

**Languages:** English, Mandarin, Strong bilingual skills (communication & writing skills)

**IT Skills:** Microsoft Office Applications, Advanced Excel (Macros/VBA/Pivot Tables), PowerPoint, Word, ArcGIS, ArcMap, C program, Matlab

## Educational Background

**BASc. in Civil Engineering, Minor in Business**

University of Toronto 09/2014-05/2019

Relevant Courses: Building Science, Sustainable Energy Systems, Terrestrial Energy System, Sustainable Buildings, Design of Building Enclosures, Construction Management, Construction Engineering

## Work Experience

### Civil Engineer Intern

*Cordogan Clark & Associates, Inc., Chicago, IL*

05/2017-08/2017

- Assisted in the negotiation and pre-project technical plans, prepared bidding documents and related blueprint designs according to engineering regulations and standards using *Office* software
- Developed design concepts of projects, such as architectural design, preliminary design, detailed design, green building design, energy-saving design, and calculation (including check and audit) using *AutoCad* and *Revit*
- Assisted in technical review, quality management, communication and coordination with contractors, architects, and engineers; conducted site investigation every two weeks to ensure that projects went well according to design standards, aiming for and achieving target rate of over 90%
- Co-operated with engineers in construction assessment and site evaluation, submitted weekly design plans and bi-weekly construction site reports and offered individual analysis of the report results
- Participated in the training course in terms of new sustainable products and gave reasonable suggestions during the implementation process based on the concept of sustainable development ideas and practices.

*Main projects include:*

#### ***U Apartment Engineering and Architecture Project***

05/2017-06/2017

- Assisted the structural engineer in the construction evaluation; completed the construction documents and designed the architectural blueprint according to client's requirements, achieving a client-satisfaction rate of 100%
- Conducted in-depth participation in the project, such as weekly site visit and investigation; offered individual analysis of the project defects and risks in the reports then provided professional advice and assistance
- Organized meetings with the general contractor, subcontractors, the builder, architects and engineers every two weeks to discuss project process and keep track of scheduling and cost
- Coordinated issues for the client; adapted the designs to the client's requirements to complete the service delivery

#### ***Lakeview High School Renovations and Restoration***

05/2017-08/2017

- Assisted architects and structural engineers in restoring old buildings; conducted site investigations according to the client's requirements
- Combined the concept of modern architecture and sustainable development with the original style of architecture to redesign the blueprint; prepared materials for the preliminary stage of construction.
- Conducted site investigations with the architect weekly, including technical review, quality management; gave relevant assessment reports to ensure the buildings are restored with effective methods
- Submitted site reports to the architect every week; took photos of the rehabilitation process; monitored the quality and process of the building restoration

#### ***Wuxi Dingshu General Airport Project Management***

07/2017-08/2017

- Assisted in the project management; prepared project bidding preparation and tender writing; translated the bid documents and the relevant work involved in the bidding process to ensure the bid documents are delivered on time
- Actively coordinated and resolved issues in the design documents preparation and monitored project process
- Served as the main contributor to the development of communication plan to promote the communication between several parties
- Suggested the methods of conducting overall quality management principles to realize high-efficient operation

## Team Projects

### ***Hygrothermal Modeling***

- Investigated an as-built exterior wall assembly of a hospital building in St. John's, NFLD
- Determined the occurrence of condensation during the month of February utilizing Steady-state vapor diffusion analysis and WUFI modeling
- Proposed to use fiberglass to replace the AP Foil-Faced Foam Sheathing and added a vapor retarder layer between fiberglass and SOPRASEAL STICK VP
- Conducted new design on WUFI which showed no condensation occurs in the new system for five years

### ***Modeling for 2D Heat Flow***

- Analyzed four different wall configurations with wood frame and steel frame and conducted hand calculations to determine the nominal thermal resistance of R value
- Applied THERM 2D finite element software to determine the overall R value. The differences between each case are compared and analyzed through the summarizing bar graphs
- Figured why Nominal R-values are always the highest and added XPS CI Exterior to reduce the thermal bridge effect
- Utilized THERM 2D to solve complex heat transfer problems more accurately

### ***High Performance Wall Design***

- Completed a design of high performance south-facing exterior window and wall system for a 3-storey commercial retail store located in Edmonton, Alberta
- Approached through wall design and window design, used THERM 7.6 to conduct the 2D heat flow in the wall system
- Applied hand calculations to determine the nominal thermal resistance of the wall assembly
- Applied Steady-state vapor diffusion analysis to determine the occurrence of condensation in the wall system by WUFI for one year period, and the overall thermal resistance of the wall by assuming 1D parallel heat flow
- Discussed how exterior brick was attached to the building, and how the control layers were made continuous at the intersection between windows and the opaque portions of the wall